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THE AMERICAN YEAR BOOK

A Record of Events and Progress

YEAR 1940

EDITOR

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GENERAL EDITOR

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EDITED WITH THE COÖPERATION OF A SUPERVISORY BOARD REPRESENTING NATIONAL LEARNED SOCIETIES

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PREFACE

The intensification of the War in Europe and the spread of the conflict to the Mediterranean regions, with the ominous prospect of involving the Balkan and other countries still technically neutral, have brought the American scene definitely into the picture of world turmoil. Virtually all topics treated in this volume have yielded to the influence of Europe's tragedy. The United States finds itself embarked upon a costly program of defense. The drafting of the Nation's younger man-power has broad social and economic purport. The country has accepted the thesis that the British Empire is its first line of defense. On that thesis the United States has become, for all practical purposes, the ally of Great Britain. The costs in money, in men temporarily lost to productive processes, in industry turned over to the manifold requirements of war, in morale and health, are none the less real for being unconnected with a formal declaration of war.

In this twenty-sixth issue of The American Year Book will be found the statement of facts, together with their discussion and interpretation, which constitute the American scene in the year 1940. It is a scene in striking contrast to that depicted in previous issues; it emphasizes the research value of this work as reflected in the entire series to date from the year 1910, except for the period, 1920-1924. In addition to the narrative reviews of all fields of action and thought, there are chronologies for national, international, business and financial affairs, along with society and publication lists for the pursuance of more detailed study and research. The Editors have labored to make this book now, as in the past, a convenient and comprehensive record of contemporary events. It is primarily an American record yet it does not exclude foreign events which have a bearing on our destiny. The value of the current and former issues lies in the completeness of the presentation, as a running chronicle, of a deeply significant period in American and World history.

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THE AMERICAN
YEAR BOOK

THE
AMERICAN YEAR BOOK

A RECORD OF EVENTS AND PROGRESS

PART ONE

HISTORICAL

DIVISION I

AMERICAN POLITICAL HISTORY

PRESIDENTIAL CAMPAIGN AND ELECTION

By Everett S. Brown
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END OF THE ANTI-THIRD TERM TRADITION

By his victory in the 1940 election, Franklin Delano Roosevelt became the first President of the United States to be elected for a third term, thus bringing to an end a tradition which had endured for 150 years. The 1940 election was noteworthy also for the fact that the Republican candidate, Wendell L. Willkie, was a former Democrat who had never held a political office and who, prior to 1940, was unknown outside the business world. Never before had a presidential candidate risen to political prominence so rapidly.

CONVENTION PREPARATIONS

At its meeting in Washington on Feb. 5, 1940 the Democratic National Committee decided that the Democratic National Convention should be held in Chicago. Desirous of continuing the custom of the Democrats of nominating their candidates after the Republican ticket had been chosen, the committee authorized its chairman, James A. Farley, to fix the date of the meeting. The date eventually chosen by Mr. Farley was July 15, three weeks after the date set for the Republican Convention. The number of delegates to the Democratic Convention was 1,100, the same as in 1936. The Democratic National Committee adopted a resolution endorsing the record of the Roosevelt administration but avoiding any reference to a third term, although several individual members of the committee expressed themselves strongly in favor of renominating President Roosevelt.

The Republican National Committee, meeting in Washington on Feb. 16, voted to hold the convention of its party in Philadelphia on June 24. In conformance with the Republican system of representation, the number of delegates to the convention was fixed at 1,000. At this meeting of the committee its chairman, John D. M. Hamilton, challenged the Democrats to renominate President Roosevelt and make a clear-cut issue of the New Deal and the third term. An interesting innovation at the meeting was the presentation by Glenn Frank of a 30,000 word report on policies suggested as a basis for the party platform. The report was the result of two years of research and study and covered a wide range of topics from a foreign policy of keeping out of war to a domestic one of a protectively regulated system of free enterprise.

REPUBLICAN PRE-CONVENTION ACTIVITIES

Numerous candidates made an early appearance in the Republican field. Although active in support of their party, neither former President Herbert Hoover nor Alfred M. Landon, the nominee in 1936, was seriously considered for the nomination. The leading candidates in the pre-convention campaign were District Attorney Thomas E. Dewey of New York and Senator Robert A. Taft of Ohio. Both of these men entered state primaries and made numerous campaign addresses. Senator Arthur Vandenberg of Michigan, while not so openly active in pursuit of the nomination, was regarded by many persons as a possible strong contender. A campaign in his own behalf was waged by Frank E. Gannett, Rochester, N. Y., newspaper publisher and bitter critic of the New Deal. Another avowed aspirant for the nomination was Senator Henry Styles Bridges of New Hampshire.

On the basis of polls of popular opinion, Dewey was the leading candidate, with Taft and Vandenberg following somewhat behind, but it became apparent by the middle of May that a "dark horse" threatened to upset early calculations. This was Wendell L. Willkie, head of the Commonwealth and Southern Corporation, who had first achieved national prominence in his controversy with the government in connection with the Tennessee Valley Authority. Supporters of Willkie had made their appearance in various quarters, and he began to receive much favorable newspaper publicity, based largely on addresses which he delivered before associations of business men.

DEMOCRATIC PRE-CONVENTION ACTIVITIES

All Democratic pre-convention activities were overshadowed by the one important question: Would President Roosevelt decide to run for a third term? Unless and until he made a definite statement of his intentions, other possible candidates were handicapped. Despite constant attempts by political leaders to draw him out, no such statement was forthcoming from the President. In reply to a demand from Alfred M. Landon, titular head of the Republican Party, that he disavow the move to give him a third term, the President answered that he was too busy with problems of far greater national importance to prepare a political statement. Early in the year John L. Lewis, the head of the Congress of Industrial Organizations, voiced his opposition to a third term for President Roosevelt, as did Senator Ellison D. Smith of South Carolina and Senator Sheridan Downey of California. Refusal of Senator Vic Donahey of Ohio to become a "stalking horse" for President Roosevelt in the Ohio presidential primary, as he had been urged to do by the Democratic State Central Committee, was construed by anti-New Dealers as evidence of Senator Donahey's opposition to the President. This was denied by Senator Donahey, who said he favored "the New Deal policies and was opposed to any candidate who did not stoutly stand for the Roosevelt program."

Evidences of support of the President came from all sections of the country. In February the Pennsylvania Democratic State Committee endorsed him for a third term. Failure of the President to withdraw his name from the Illinois preferential primary was regarded as leaving the way open for drafting him for the Democratic nomination. The Georgia Democratic Executive Committee, following its session in April, named a special committee to wait upon the President at Warm Springs and urge him to accept the nomination of the party. The Maine Democratic State Convention instructed its delegates to the National Convention to cast their votes for the President. The California primary resulted in an overwhelming victory for delegates favoring the President's renomination. The Democratic National Convention in Iowa assured the President of Iowa's 22 votes in the National Convention if he decided to run. As the date of the National Convention approached, demands that the President run again became more widespread and urgent. In the meantime, as early as December, 1939, Vice-President Garner had announced that he would be a candidate for the Presidency irrespective of any other. His efforts to obtain support for himself led to a rift with the President. In March, James A. Farley agreed to let his name be entered in the Massachusetts primaries and said it would be presented at Chicago. It was later explained that it was understood the Farley delegates belonged to the President any time he might want them. Paul V. McNutt and Senator Burton K. Wheeler of Montana, listed among the potential candidates, withheld their names pending President Roosevelt's decision to run. Other Democrats whose names figured prominently in the discussions of possible candidates were Secretary of State Cordell Hull, Secretary of Agriculture Henry A. Wallace, Attorney General Robert Jackson, and Associate Justice William O. Douglas.

THE REPUBLICAN CONVENTION

Preliminary arrangements for the Republican Convention were made by the committee on arrangements at a meeting in Philadelphia on April 16. Governor Harold E. Stassen of Minnesota was selected to make the keynote speech as temporary chairman of the Convention and Representative Joseph W. Martin, Jr., of Massachusetts was favored for permanent chairman. To expedite the business of the convention, the committee on arrangements decided to recommend that nominating speeches be limited to 30 minutes and seconding speeches to four or five minutes each.

In its early stages the Republican Convention followed tradition. Called to order by John D. M. Hamilton, chairman of the National Committee, it listened to the address of Governor Stassen, in which he attacked the Roosevelt Administration for its shortcomings and presented four major fronts of advance toward making America strong and our way of life secure. These fronts were national preparedness, "fifth column" defense, domestic economic welfare, and governmental effectiveness and integrity. Permanent Chairman Martin spoke in similar vein, and on special invitation, former President Herbert Hoover addressed the convention, pointing to the danger of weakening the structure of American liberty by the development of bureaucratic government.

The platform was also traditional in character, covering a wide range of subjects and involving compromises on many issues. On foreign affairs an all-aid-to-the-Allies-short-of-war pledge demanded by a group led by Alfred Landon was opposed by noninterventionists and changed to a policy of "Americanism, preparedness, and peace." Other highlights of the platform pledged the removal of waste and politics from relief through administration by the states, with Federal grants-in-aid; proposed the amendment of the National Labor Relations Act in fairness to employers and all groups of employees; favored the extension of necessary old-age benefits on an earmarked, pay-as-you-go basis; promised to put into effect such governmental agencies as would establish an equitable balance between labor, industry, and agriculture; condemned the New Deal encouragement of various groups that seek to change the American form of government; promised to encourage private enterprise, to confine government activity to essential public services, and to regulate business only so as to protect consumer, employee, and investor, and without restricting production; condemned the manner in which the reciprocal-trade agreements had been put into effect and proposed to explore every possibility of reopening the channels of international trade through negotiations; demanded that Congress reclaim its constitutional powers over money; promised to revise the tax system and remove practices which impede recovery; pledged to conserve the public credit by levying taxation sufficient to cover necessary civil expenditure, a substantial part of the defense cost, and the interest and retirement of the national debt; promised to cut public expenditures and to re-establish in the Federal Civil Service a real merit system; and favored an amendment to the Constitution providing that no person should be President of the United States for more than two terms.

Where tradition was upset in the Republican Convention was in the nomination of Wendell L. Willkie for President. Unlike most previous conventions, this one was not controlled by professional politicians and party leaders. Divided among themselves over issues and candidates, these leaders faced an increasingly swelling popular demand for a candidate who had recently been a Democrat and who was independent of party organization ties. On the first night of the convention, there were shouts of "we want Willkie," and these gallery demonstrations grew louder as the convention progressed. An indication of what might happen came soon after the keynote address when Governor Stassen declared his support of Willkie and became his floor leader. Nominating speeches afforded further evidence of convention trends. John Lord O'Brian nominated Dewey, Representative James W. Wadsworth named Frank Gannett, and Grove Patterson, editor of the Toledo *Blade*, nominated Senator Taft. Next came the nomination of Willkie by Representative Halleck of Indiana. Delegates booed but the galleries cheered. Willkie seconding speeches were made by Representative Bruce Barton of New York, Governor Ralph L. Carr of Colorado, Anne Stuart of Minnesota, and Governor Raymond Baldwin of Connecticut. Other nominations followed: Hanford MacNider of Iowa, Senator Arthur H. Vandenberg of Michigan, Senator Styles Bridges of New Hampshire, Senator Charles McNary of Oregon, Governor Arthur H. James of Pennsylvania, and Governor Harlan J. Bushfield of South Dakota.

On the first ballot the votes were: Dewey 360, Taft 189, Willkie 105, Vandenberg 76, James 74, Martin 44, Gannett 35, MacNider 34, Hoover 17. On the second ballot Dewey dropped to 338, Taft rose to 203, and Willkie to 171. This trend continued through the third ballot with Dewey 315, Willkie 259, and Taft 212. It was now apparent that with Dewey's strength fast crumbling, the question was whether his votes would go to Taft or Willkie. On the fourth ballot Taft gained 42 votes for a total of 254, Willkie added 47 to total 306, while Dewey dropped to 250. The fifth ballot marked an equal gain of 123 votes for Willkie and Taft, but on this ballot New York and Kansas turned wholly to Willkie. The break came on the sixth ballot and with one state delegation after another supporting Willkie, the nomination was made unanimous.

There remained only the naming of a Vice-Presidential candidate, and this honor went to Senator Charles L. McNary of Oregon, Republican Senate leader and farm spokesman. It was an interesting commentary on the sudden rise of Willkie to political prominence that he and his future running mate had never met one another prior to the convention. This rise was emphasized by Willkie himself in his brief appearance before the delegates to the convention following his nomination when he said: "Forty-eight days, and only forty-eight days ago, I started to preach to the American people the doctrine of unity, the doctrine of the destiny of America."

THE DEMOCRATIC CONVENTION

Dramatic action in the Democratic Convention, which opened on July 15, was supplied by the nominations of Franklin D. Roosevelt for President and Henry A. Wallace for Vice-President. The events preliminary to the nominations were matters of mere routine. Introduced by James A. Farley, Representative William B. Bankhead of Alabama, the temporary chairman of the Convention, delivered the keynote address, praising the record of the Roosevelt Administration and criticizing the Republican platform adopted at Philadelphia. On July 16, Senator Alben W. Barkley of Kentucky was chosen as permanent chairman. Senator Barkley, in his address to the Convention, also related the accomplishments of the Democratic Administration since 1933, and emphasized especially the steps taken by President Roosevelt to avert the European war and at the same time to prepare the United States for national defense.

Immediately following his address, Senator Barkley stated that at the specific request and authorization of the President he was making an announcement concerning the nomination for the presidency. This historic statement is as follows: "The President has never had, and has not today, any desire or purpose to continue in the office of President, to be a candidate for that office, or to be nominated by the convention for that office. He wishes in all earnestness and sincerity to make it clear that all of the delegates to this convention are free to vote for any candidate." Since President Roosevelt had not said that he would not be a candidate, the way was open for his nomination. It was rumored that a plan was on foot, under the leadership of Harry L. Hopkins, to have the President nominated by acclamation but that National Committee Chairman James A. Farley insisted that the Convention must be regular and that the usual order of events should be followed. Next in order, therefore, was the adoption of the party platform.

As in the case of the Republicans, the Democratic Convention adopted a lengthy platform. In foreign affairs the platform promised that we would not participate in foreign wars, nor send our forces to fight in foreign lands outside the Americas, except in case of attack; promised to enforce and defend the Monroe Doctrine; and pledged "all the material aid at our command, consistent with law and not inconsistent with the interest of our own national defense" to "the peace-loving and liberty-loving peoples wantonly attacked by ruthless aggressors." Criticizing the Republican farm policies, the Democratic Party pledged itself to make parity as well as soil conservation payments until parity income is realized; to extend the farm tenancy program; to refinance farm debts at lower interest rates; to continue production adjustment to control surpluses; to continue commodity loans; to extend domestic consumption through the food stamp plan; to enlarge the rural rehabilitation program; to extend crop insurance from wheat to other crops; to encourage farmer-owned cooperatives; to conserve soil and water resources, and encourage marketing agreements. Claiming that it had accomplished more in the last seven years to benefit workers than any other Administration in the country's history, the party pledged continuation of the Wagner Labor Act program and also of the bituminous coal act. It promised to continue to attack "unbridled concentration of economic power"; favored legislation to aid small business; advocated removal of tax-exempt Federal, state and local bonds; and approved strict supervision of all forms of insurance businesses. It condemned the Republican Party's power policy and pledged itself "militantly to oppose every effort to encroach upon the inherent right of our people to be provided with this primary essential of life at the lowest possible cost." It opposed turning control of federally financed relief over to state and local authorities and denounced Republican efforts in that direction.

With its platform out of the way the Democratic National Convention again turned its attention to the nominations. On the previous evening, after the announcement by Senator Barkley, there had been a long demonstration in favor of President Roosevelt. When order had been restored, Senator Byrnes of South Carolina stated what was in the minds of the great majority of the delegates: "Tomorrow night we can meet to finish the job for which you came here —of drafting Roosevelt." So on the night of July 17 the nominations began. Alabama, first to be called, placed the name of President Roosevelt before the Convention in a speech by Senator Lister Hill of that state. Arizona seconded the nomination, and then Arkansas yielded to Virginia. Senator Carter Glass of Virginia told the delegates that he had left a sickroom to present James A. Farley's name to the Convention. Boos met his reference to Thomas Jefferson's opposition to third term nominations, but Glass stood his ground and completed his speech. Edward J. Colgan, Jr., nominated Senator Millard Tydings of Maryland, and Wright Morrow nominated Vice-President John N. Garner. The roll call resulted in the following vote: Roosevelt 946 12/30, Farley 72 27/30, Garner 61, Tydings 9 15/30, Cordell Hull 5 20/30. James A. Farley moved the rules be suspended and the President be acclaimed the party's nominee. This was done and a committee was appointed to advise the President of his nomination.

So far as the Vice-Presidency was concerned, word was sent about that the President desired to have Secretary of Agriculture Wallace as his running mate. Signs of revolt evidenced themselves. Representative William Bankhead became Wallace's principal rival for the nomination after Paul McNutt asked that his name be withdrawn. During seconding speeches Wallace's name was booed but the Administration lines held fast and the roll call was: Wallace 627.7, Bankhead 329.26, McNutt 66.63, Farley 8, Senator Alva B. Adams of Colorado 11, Barkley 3, Senator Joseph C. O'Mahoney of Wyoming 3. Mrs. Roosevelt flew to Chicago from Hyde Park and briefly addressed the convention.

All that remained to complete the nominations was the formal acceptance of the President and this came at 2:10 on the morning of July 19 in a radio address from the White House. The President said, in part: ". . . it was my firm intention to turn over the responsibilities of government to other hands at the end of my term. . . . When the conflict first broke out last September, it was still my intention to announce simply, at an early date, that under no conditions would I accept re-election. . . . Swiftly moving foreign events made necessary swift action at home and beyond the seas. . . . National unity in the United States became a crying essential in the face of the development of unbelievable types of espionage and international treachery. Every day that passed called for the postponement of personal plans and partisan debate until the last possible moment. . . . Thinking solely of the national good and of the international scene, I came to the reluctant conclusion that such declaration should not be made before the national convention. It was accordingly made to you within an hour after the permanent organization of the convention." Declaring that his conscience would not let him turn his back upon a call to service, the President continued: "The right to make that call rests with the people through the American method of free election. Only the people themselves can draft a President. If such a draft should be made upon me, I say, in the utmost simplicity, I will with God's help continue to serve with the best of my ability and with the fullness of my strength."

THE REPUBLICAN CAMPAIGN

Following his nomination, Wendell Willkie went to Colorado Springs on July 9, ostensibly for a vacation. However, during his month's stay in Colorado, he saw many people, including former President Herbert Hoover and Alfred M. Landon, the 1936 Republican candidate. He made a swing through the Mountain States, flew to Des Moines for a farm conference, and made about a dozen informal speeches. Declaring that his was not a political campaign but "a crusade for the preservation of the American way of life," Mr. Willkie issued a call to members of his own party, anti-New Deal Democrats and independents to rally to his standard for a battle against the New Deal. Representative Joseph W. Martin, Jr. of Massachusetts was named chairman of the Republican National Committee and manager of the presidential campaign. John D. M. Hamilton, the former national chairman, was retained as executive director of the campaign. Owen Root, Jr., who was one of the early supporters of Mr. Willkie, continued his leadership of the Willkie-for-President clubs. Lewis W. Douglas and John W. Hanes, former New Dealers, were appointed to organize a national independent Democratic movement to promote the election of Mr. Willkie.

Mr. Willkie's formal acceptance speech was made on Aug. 17 in his home town of Elwood, Indiana. In a 6,000 word address, he stated his position on the issues of foreign policy, defense, conscription, agriculture, social security, and labor. In foreign policy he said he would do everything to defend American democracy and would refrain from doing anything that injured it. He expressed the belief that it was the first duty of a President to try to maintain peace. Then, as later, he favored all possible material support to Great Britain, but criticized President Roosevelt for reckless statements against foreign governments with which we were at peace. For national defense, he took his stand for some form of conscription. On domestic social issues, he stated his belief in collective bargaining, in old-age pensions, unemployment benefits, in regulation of security markets, banking, interstate utilities, in aid to the farmer, and in taxation upon ability to pay. He attacked the New Deal for a policy of defeatism and for spreading disunity among the American people. He challenged the President to joint debate on the issues of the campaign.

Mr. Willkie's plan of campaign was to deliver a number of set speeches on important issues in various parts of the country and to make numerous informal appearances from the platform of a special train as it sped from one side of the continent to another. In a voice worn hoarse from over-use, he urged the people to join his crusade to make America strong in defense, productive in agricultural and industrial enterprise, and free from fear of dictatorship from abroad or at home. He said he would never send American troops to fight in a war abroad. He referred constantly to President Roosevelt as the "third term candidate," thus stressing the anti-third term issue. He promised jobs to laboring men, and attacked the alliance of the New Deal with Boss Kelly of Chicago, Hague of New Jersey, and Flynn of the Bronx. Herbert Hoover, Alfred M. Landon, Thomas E. Dewey, Robert A. Taft, Arthur H. Vandenberg, Governor Stassen, vice-presidential nominee Charles L. McNary, and other leading Republicans took to the stump. Anti-New Deal Democrats, among them former-Governor Alfred E. Smith, Oswald Garrison Villard, and Irving Cobb, joined in support of Mr. Willkie. Hiram Johnson, a former supporter of President Roosevelt, returned to the Republican party fold and urged Mr. Willkie's election. In a dramatic radio address, John L. Lewis, president of the Congress of Industrial Organizations, denounced the President for having broken faith with Labor, asked the laboring men of the country to vote for Mr. Willkie, and declared he would resign his leadership of the C.I.O. if President Roosevelt were re-elected.

Feeling ran high during the campaign, and on several occasions eggs were hurled at Mr. Willkie and his wife. The Republican campaign was brought to a close by a two-hour radio program, featuring speeches by leaders of all elements of the Willkie supporters and by Mr. Willkie himself. In his final address Mr. Willkie declared that it rested with the American people "to choose whether we shall continue on the course that leads us step by step to the destruction of our democratic life, or whether we shall resume the uninterrupted forward march that made America the most productive and therefore the most powerful nation in the world." He appealed to the voters to keep America strong, at peace, and free.

THE DEMOCRATIC CAMPAIGN

James A. Farley, the successful and popular chairman of the Democratic National Committee for eight years, resigned his post and was succeeded by Edward J. Flynn of New York City.

In his speech of acceptance to the Democratic Convention on July 19, President Roosevelt said that he would "not have time or the inclination to engage in any purely political debate," but added that he would "never be loath to call the attention of the nation to deliberate or unwilling falsifications of fact." On Oct. 18, the President, at a press conference, repeated this statement and accused the opposition in the political campaign of systematic and deliberate falsification of fact. He said he would reply in a series of speeches. In the interim between July and October the burden of the campaign had been carried by vice-presidential nominee Henry A. Wallace and other prominent Democrats. Mr. Wallace, from his acceptance speech onward, showed that the Democrats realized the significance of foreign affairs in the campaign by emphasizing the need of retaining President Roosevelt in office during the immediate crisis in Europe. He charged that Nazi agents had been ordered to spend money in an effort to defeat the President. He described Mr. Willkie as well-meaning but declared that "the friends of the totalitarian powers have decided that the ignorance and lack of leadership of the Republican candidate qualify him as their candidate."

In accordance with his expressed plan to answer what he charged as misrepresentations and falsifications, the President delivered political addresses in Wilmington, Philadelphia, at Madison Square Garden in New York City, Hartford, Boston, Brooklyn, and Cleveland. At Philadelphia he assured his audience that "there is no secret treaty, no secret obligation, no secret commitment, no secret understanding in any shape or form, direct or indirect, with any other government, or any other nation in any part of the world to involve this nation in any war or for any other purpose." He declared that his every act and thought had been directed toward the preservation of peace throughout the world and particularly in the United States and the Western Hemisphere. In New York, at Madison Square Garden, in addition to repeating the story of his efforts toward peace, the President gave a detailed account of the steps taken by his Administration to prepare the country for national defense, and accused Republican leaders in Congress of attempting to block the defense program. In his address in Boston, he described the expansion of the airplane industry through government orders, reviewed the improved condition of farmers throughout the country, and emphasized the unity of the American people. In Brooklyn the President declared that he was a firm believer in private enterprise and in private property and in the American opportunity of men and women to rise in private enterprise. To insure this equal opportunity, he held it necessary to push ahead with social and economic reforms to safeguard the rights of the mass of the people. He condemned appeals to class hatred.

In his final national address delivered in Cleveland, President Roosevelt said that the representatives of all the forces of those who would destroy America were, without exception, voting against the New Deal. He re-stated his foreign policy: first, to keep our country out of war and to keep foreign conceptions of government out of the United States; second, to keep war as far away as possible from the shores of the entire Western Hemisphere by promoting friendly relations with the Latin-American republics and with Canada; third, to give all possible material aid to the nations that still resist aggression, across the Atlantic and Pacific Oceans. He denied that his political philosophy had been a defeatist one; instead it had been dynamic. He promised to continue a program of social and economic reform which would preserve and strengthen democratic principles. He painted a picture of an America prosperous, united and free.

In the closing days of the campaign Joseph P. Kennedy, Ambassador to Great Britain, flew home and made a radio address in behalf of the President. John L. Lewis' defection from Democratic ranks was offset by the support of many Labor leaders of the C.I.O. and A.F. of L. In a rally on the eve of the election, the Democrats broadcast a program over practically all of the national radio systems. The program included songs and speeches by political leaders and persons prominent in literary and movie life. A solemn note was struck by the President's reading of a prayer.

SOCIALIST PARTY

The delegates to the national convention of the Socialist Party assembled in Washington on April 6 and for the fourth time nominated Norman Thomas of New York for President. For Vice-President the delegates selected Maynard C. Krueger, a member of the economics faculty of the University of Chicago. A resolution strongly opposing American entry into the war was adopted over the opposition of a minority group who, while opposing American entry into the European war, favored extending economic but not military aid to the Allies in their attempt to defeat nazism and fascism. Denying that either the Republicans or the Democrats offered any adequate remedy for the poverty and insecurity of 20 per cent of the American people, the Socialist platform demanded "social ownership and democratic control of industry, substituting the principle of public service or of social usefulness for the principle of private profit, preserving workers' free choice of occupation, consumers' free choice of goods and freedom of association for all functional groups." This thesis was developed more fully by Mr. Thomas in a series of campaign speeches in different parts of the country. In his final address in New York, he predicted the re-election of Mr. Roosevelt and expressed fear that, despite his insistence that he desired peace, the President was likely to embroil the United States in foreign war. Mr. Thomas asserted that the hope of democracy and of peace lay "not in an impossible return to a dying order," but "in the choice of a cooperative commonwealth rather than a totalitarian State." He repeated the Socialists' contention that "a democracy of free men can harness its machinery for the destruction of poverty better than any dictatorship has harnessed its machinery for military victory."

COMMUNIST PARTY

The National Committee of the Communist Party of America met in New York on Feb. 17 and selected New York as the place for its 1940 convention and fixed May 30 as the date. William Z. Foster, national chairman of the committee, announced unofficially that Earl Browder would be nominated for the presidency and James W. Ford for the vice-presidency of the United States. At a press interview, Mr. Browder indicated that the Communists would concentrate on getting as large a vote as possible for their own candidates rather than lending their support to the most favored candidate of the major parties. In a final appeal to his followers on the eve of the election, Mr. Browder asserted that members of his party were not agents of Stalin. He insisted, however, that "the Soviet Union has maintained peace with its neighbors, has kept neutral toward the imperialist war, has defeated all attempts to draw it in, to the great benefit of its people." He said the Communist Party would save America from catastrophe by emulating the policy of Stalin. Describing the United States as on the very brink of belligerency, Mr. Browder charged that the major party candidates, Roosevelt and Willkie, were jointly responsible for the trend toward imperialist war. He assailed the banning of the Communist ballot by court order in New York and in other states and appealed to Communists to vote Communist wherever they could.

PROHIBITION PARTY

Roger W. Babson, economist, of Massachusetts, was nominated for President and Edgar V. Moorman, of Quincy, Ill., for Vice-President, by the Prohibition Party at its three-day convention from May 8 to May 10 in Chicago. The platform, written by Mr. Babson, not only opposed liquor but also included a stand on economic and other issues and stressed the "need of a spiritual awakening."

SOCIALIST LABOR PARTY

John W. Aiken of Chelsea, Mass., the party's presidential candidate in 1936, was again nominated for the presidency by the Socialist Labor Party at the closing session of its national convention on April 29 in New York City. For Vice-President, the Socialist Laborites named Aaron M. Orange, a New York City school teacher. The party platform asserted that only through the end of capitalism could war be avoided. The party would bring about such a change by means of the ballot. A resolution was adopted holding it to be the duty of all workers to oppose extension of the European war. Another resolution condemned the Hitler-Stalin pact, while a third condemned all efforts to curb civil liberties. In the latter connection Mr. Aiken charged that the "high-handed activities of the Federal Bureau of Investigation, the brazen raids conducted by investigators of the Dies Committee, and the proposed anti-alien legislation are the first steps in a complete blackout of all civil liberties." The American Federation of Labor and the Congress of Industrial Organizations were characterized as agencies of capitalism.

ELECTION STATISTICS AND CONCLUSIONS

The total vote cast in the presidential election was 49,815,312, more than 4,000,000 greater than the total of 1936. Of these votes President Roosevelt received 27,243,466, as against 22,304,755 polled by Willkie. Although losing, Willkie obtained a record popular vote for the Republicans, exceeding by more than 900,000 Herbert Hoover's previous high mark set in 1928. In the electoral college President Roosevelt carried 36 states, for a total of 449 electoral votes, while Willkie received 82 electoral votes from 10 states. The states won by the Republicans were Colorado, Indiana, Iowa, Kansas, Maine, Michigan, Nebraska, North Dakota, South Dakota, and Vermont. President Roosevelt succeeded in holding the greater part of the labor vote and the vote of the lower income group. He also received the greater share of the new votes.

The following votes were polled by the minor party candidates: Thomas (Socialist), 99,557; Babson (Prohibition), 57,812; Browder (Communist), 46,251; Aiken (Socialist Labor), 14,861; scattering votes, 413. The poor showing of the minor parties may be attributed in part to failure to get on a number of state ballots. Communists were barred by some states and other parties failed to get the necessary number of signatures for qualifying petitions. The Socialist vote was the lowest polled by the party since 1900. Babson's vote was higher than the vote of his party in 1936 but considerably less than in 1932. The 1940 election showed no signs of a break from the American two-party tradition.

Despite the provisions of the Hatch Acts of 1939 and 1940, which limited individual campaign gifts to $5,000 and prohibited a political committee or party from spending more than $3,000,000 a year, investigators for the Senate Committee on Campaign Expenditures expressed the belief that more money was spent in the 1940 election than ever before. They put the total cost of the national campaign at something over $20,000,000.

PRESIDENTIAL VOTE BY STATES, 1940*

(Compiled by the Associated Press)

States	Roosevelt, Democratic	Willkie, Republican	Thomas, Socialist	Browder, Communist	Babson, Prohibition	Aiken, Socialist Labor
Alabama	250,726	42,184	100	509	700	...
Arizona	95,267	54,030	...	...	742	...
Arkansas	158,622	42,121	305	...	793	...
California	1,877,618	1,351,419	16,506	13,586	9,400	...
Colorado	265,364	278,855	1,905	376	1,599	...
Connecticut	417,621	361,819	...	1,091	...	971
Delaware	74,599	61,390	129	...	207	...
Florida	360,407	126,412	...	...	...	...
Georgia	265,194	46,362	...	...	983	...
Idaho	127,835	106,555	497	269	...	...
Illinois	2,149,934	2,047,240	10,914	...	9,190	...
Indiana	874,063	899,466	2,075	...	6,437	706
Iowa	578,800	632,370	...	1,524	2,284	452
Kansas	364,725	489,160	2,347	...	4,056	...
Kentucky	557,222	410,384	1,014	...	1,443	...
Louisiana	319,751	52,446	...	...	...	...
Maine	156,478	163,951	...	411	...	...
Maryland	385,546	269,544	3,967	1,216	...	635
Massachusetts	1,076,522	939,700	4,091	3,806	1,370	1,492
Michigan	1,032,991	1,039,917	7,593	2,834	1,795	795
Minnesota	644,196	596,274	5,454	2,711	...	2,553
Mississippi	168,267	7,364	193	...	...	...
Missouri	958,476	871,009	2,226	...	1,809	209
Montana	145,698	99,579	1,443	489	664	...
Nebraska	259,435	345,408	...	...	...	...
Nevada	31,945	21,229	...	...	...	...
New Hampshire	125,292	110,127	...	...	...	...
New Jersey	1,016,404	944,876	2,823	8,814	851	446
New Mexico	103,699	79,615	144	...	100	...
New York	3,251,918	3,027,478	18,950	...	3,250	...
North Carolina	609,015	213,633	...	...	...	...
North Dakota	124,036	154,590	1,279	545	325	...
Ohio	1,733,139	1,586,773	...	...	...	...
Oklahoma	474,313	348,872	...	...	3,027	...
Oregon	258,415	219,555	398	191	154	2,487
Pennsylvania	2,171,035	1,889,848	10,967	4,519	...	1,518
Rhode Island	181,881	138,432	...	...	...	...
South Carolina	95,470	4,360	...	...	2	...
South Dakota	131,362	177,065	...	...	...	...
Tennessee	351,601	169,153	463	...	1,606	...
Texas	840,151	199,152	728	212	925	...
Utah	154,277	93,151	198	191	...	...
Vermont	64,269	78,371	...	404	...	...
Virginia	235,961	109,363	282	71	882	48
Washington	462,145	322,123	4,586	2,626	1,686	667
West Virginia	496,146	372,662	...	...	...	...
Wisconsin	704,821	679,206	15,071	2,394	2,148	1,882
Wyoming	59,287	52,633	148	...	172	...
Totals	27,241,939	22,327,226	116,796	48,789	58,600	14,861

* The figures are official except those for Nebraska and Rhode Island.

I. AMERICAN POLITICAL HISTORY

COMPARATIVE FIGURES FOR 1940, 1936 AND 1932:

Party	1940	1936	1932
Democratic	27,241,939	27,751,597	22,821,857
Republican	22,327,226	16,679,583	15,761,841
Socialist	116,796	188,014	884,781
Prohibition	58,600	37,661	81,869
Communist	48,789	80,159	102,991
Socialist Labor	14,861	12,508	33,276
Other votes	413	897,595	129,907
Total vote	49,808,624	45,647,117	39,816,522

THE PRESIDENT AND HIS POLICIES

By Everett S. Brown

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FOREIGN POLICY AND NATIONAL DEFENSE

The rapid spread of the wars in Europe and in the Orient emphasized during 1940 the importance of President Roosevelt's foreign policy and the corresponding need for an expansion of a program of national defense. In his annual message to Congress on Jan. 3, the President declared that the United States could not isolate itself from world affairs but at the same time he added that there was no expectation of sending troops abroad. He warned of the danger to us if all small nations were seized by large dictatorial powers. Pointing to the possibility of trade restrictions after the war, he said that our trade agreement policy must be extended as a stable part of enduring peace. He said that he was against foreign entangling alliances but stated that trade agreements with the rest of the world did not violate that principle. The President asked for increases in appropriations for the army and navy, on the ground that we must be ready to take care of ourselves.

The invasion of one European state after another called forth statements of sympathy for their peoples and rulers and denunciations of dictatorships; the intensification of Nazi air and submarine attacks on British cities and commerce led to ever-increasing aid to the British Government; the extension of Japanese military activities in the Far East brought American diplomatic protests and threats of embargoes on trade with Japan; the fear of Nazi penetration into South America spurred efforts to achieve the solidarity of the Western Hemisphere; while all of these factors combined to speed the program of national defense.

UNDER-SECRETARY WELLES' EUROPEAN MISSION

Early in February, 1940 President Roosevelt indicated that he had taken steps which he hoped might lead to the restoration of European peace. The first of these was the sending of Under-Secretary of State Sumner Welles to Europe to visit Italy, France, Germany, and Great Britain for the purpose of advising the President as to conditions in Europe. Coupled with the announcement of Mr. Welles' mission came a statement from Secretary Cordell Hull that diplomatic conversations of an informal character had been commenced with neutral governments and would probably be continued. Secretary Hull emphasized that these conversations involved no fixed plan but were in the nature of preliminary inquiries relating to a sound international economic system and a world-wide reduction of armaments.

Mr. Welles left Washington on Feb.

16 and returned on March 28. During the intervening period, he conferred with the Pope and the governing officials of Italy, Germany, France, and Great Britain. At a press conference following the return of Mr. Welles, the President said that Mr. Welles had made important contacts and gathered information but denied that the Under-Secretary had made any commitments or received any peace proposals. The emphasis which the President placed on the "scant immediate prospect" for the establishment of any just, stable, and lasting peace in Europe was generally interpreted as putting to an end the speculation of a peace move resulting from the trip of Mr. Welles.

MYRON C. TAYLOR AT THE VATICAN

Possibility of a peace move on the part of the President had also been seen in the sending of Myron C. Taylor as his personal ambassador to the Pope. In a letter to the Pope, presented by Mr. Taylor on Feb. 27, the President wrote that he would be happy to feel that Mr. Taylor might be "the channel of communication for any views you and I may wish to exchange in the interest of concord among the peoples of the world."

FINANCIAL AID TO FINLAND AND OTHER COUNTRIES

Whatever plans of early peace the President may have had were dispelled by European events. With special reference to Finland, but with aid to other small countries in mind also, the President, on Jan. 16, recommended to Congress an increase in the revolving credit fund of the Export-Import Bank to make available to these countries the purchase of agricultural surpluses and manufactured products. Congress took the desired action, and Federal Loan Administrator Jesse H. Jones announced that the full credit of $20,000,000 permitted to be made under the law would be made available immediately to Finland, as well as smaller sums to Sweden and Norway. The defeat of Finland by Soviet Russia brought from President Roosevelt a statement, on March 13, that "the people of Finland, by their unexcelled valor and strong resistance in the face of overwhelming armed forces, have won the moral right to live in everlasting peace and independence in the land they have so bravely defended. . . . The ending of this war does not clarify the inherent right of small nations to the maintenance of their integrity against attack by superior force."

SCANDINAVIA AND THE LOW COUNTRIES

The German invasion of Denmark and Norway caused the President to issue a formal statement condemning the attack. He extended to Norwegian waters the zone barred to American ships and travelers and ordered the freezing of Norwegian and Danish wealth in the United States. In reply to a cablegram from King Leopold, President Roosevelt, on May 11, reiterated a statement he had made the previous night to representatives of the 21 American republics that he and the people of the United States had been shocked and angered by the cruel invasion of Belgium, The Netherlands, and Luxembourg; and he expressed the hope "that policies which seek to dominate peaceful and independent peoples through force and military aggression may be arrested."

THE PRESIDENT'S PLEDGE OF AMERICAN RESOURCES

The fall of Paris and Italy's entrance into the war intensified the task of achieving the double objective of the President's foreign policy: (1) saving the Allied democratic governments by giving them all possible material aid without throwing the United States into the war; and (2) building sufficient American defenses to keep totalitarianism out of the Western Hemisphere. Speaking at the commencement exercises of the University of Virginia, President Roosevelt revealed that he had offered to negotiate differences between Italy and the Allies and that his offer had been refused by Mussolini. Referring to Italy's declaration of war, he declared: "On this tenth day of June, 1940, the hand that held the dagger has struck it into the back of its neighbor." He pledged "to the opponents of force the material resources of this nation." As part of this program, the United States Government began making reserve bombers of the army and navy air corps available to the Allies. Planes were not sold directly by the Government to the Allied Governments, but were "traded in" to private manufacturers for new models not yet completed, and the private companies sold them to the Allies.

AMERICAN LEASE OF BRITISH BASES

More concrete evidence of the President's foreign policy was soon forthcoming. On Sept. 3 he sent to Congress a message transmitting for the information of that body notes exchanged between the British Ambassador at Washington, Lord Lothian, and Secretary of State Hull, under which the United States acquired the right to lease naval and air bases in Newfoundland, Bermuda, the Bahamas, Jamaica, Santa Lucia, Trinidad, and Antiqua, and in British Guiana. The President said that the bases in Newfoundland were gifts, while the other bases had been acquired in exchange for 50 of our overage destroyers. He described the transaction as "an epochal and far-reaching act of preparation for continental defense in the face of grave danger," and characterized it as "the most important action in the reinforcement of our national defense that has been taken since the Louisiana Purchase."

PLANES AND MATERIAL TO GREAT BRITAIN

In November, General George C. Marshall, Chief of Staff of the United States Army, said that the army was making immediately available to Great Britain 26 bombers of the flying-fortress type in return for enough engines to equip 41 bombers. President Roosevelt himself, on Nov. 8, announced that deliveries of airplanes and war materials needed both by Great Britain and the United States would be divided generally on a 50-50 basis. Included in this rule, the President said, would be airplanes of all types, guns, and munitions. Immediately afterward the Priorities Board of the National Defense Advisory Commission announced approval of an application filed by Great Britain to place orders for 12,000 airplanes in addition to about 14,000 already under contract with manufacturers in this country.

AID TO GREECE AND BRITAIN

President Roosevelt assured King George II of Greece in a message made public on Dec. 7 that steps were being taken to extend aid to Greece under the settled policy of the United States Government "to extend aid to those governments and peoples who defend themselves against aggression." Ten days later the President announced a new plan for helping Great Britain by which the United States would lease planes, guns, and other war materials and accept repayment in kind after the war. He likened the plan to that of a man lending his neighbor a hose to put out a fire in his house. Stressing that the best defense of the United States was to aid Great Britain, the President declared that his proposal would not take this country nearer to actual participation in the war. He intimated that the plan, or something like it, would be presented to Congress in January.

THE PRESIDENT'S BROADCAST ON POLICY

On Dec. 29, President Roosevelt climaxed his statements on foreign policy by a nation-wide radio address in which he warned that never since the settlement of the continent had American civilization been in such danger as now. This danger came, he said, from the agreement signed in Berlin on Sept. 27 by Germany, Italy, and Japan that they would "unite in ultimate action against the United States" if we interferred with or blocked their expansion program. Quoting Adolf Hitler, the President said that Hitler proclaimed that there could be no ultimate peace between the philosophy of government of the Axis powers and our philosophy of government. He reviewed the acts by which the Nazis had overrun most of Europe and issued a warning that their secret emissaries were active in the United States and in neighboring countries. He said that our future security was greatly dependent on the outcome of the fight the British people were conducting and declared that "there is far less chance of the United States getting into war, if we do all we can now to support the nations defending themselves against attack by the Axis than if we acquiesce in their defeat, submit tamely to an Axis victory, and wait our turn to be the object of attack in another war later on." Our policy, therefore, ought to be to supply the British people with the planes, tanks, guns, and freighters which would enable them "to fight for their liberty and our security." The President denied any intention of sending an American expeditionary force outside our own borders. He appealed to manufacturers and laborers to cooperate with the government to increase the output of munitions and everything else needed for national defense.

THE FAR EAST

American-Japanese relations, already somewhat strained by the lapse of the trade treaty of 1911 and by statements from Japanese officials concerning the status of the Dutch East Indies, were rendered much more acute by the announcement in Berlin on Sept. 27 of the formation of the Rome-Berlin-Tokyo pact. In this agreement the Axis powers and Japan pledged to respect and support each other's efforts "to establish and maintain a new order of things" in Europe and Greater East Asia respectively. They undertook "to assist one another with all political, economic and military means when one of the three contracting powers is attacked by a power at present not involved in the European war or in the Chinese-Japanese conflict." The new alliance was regarded primarily as a "hands-off" warning to the United States. Commenting on the alliance, Secretary of State Hull remarked that it "merely makes clear to all a relationship which has long existed in effect and to which this government has repeatedly called attention."

The attitude of the United States toward Japan's policy in China had been made apparent by the announcement by the Export-Import Bank, on Sept. 25, of another $25,000,000 loan to China, followed on Sept. 26 by President Roosevelt's announcement that a complete embargo would be placed on all exports of scrap iron and steel, except to the Western Hemisphere and Great Britain, beginning Oct. 16. On Oct. 8 the State Department advised American citizens to return from China, Japan, Manchuria, and other parts of the Far East, and dispatched several special liners to speed the evacuation. Coincident with news that Lieutenant-General Abe, special Japanese envoy, had signed a treaty with Wang-Ching-wei, head of the Nanking regime, providing for the "readjustment" of Sino-Japanese relations, came the announcement from Washington that the United States was extending additional credit, totaling $100,000,000 to the Chinese Government at Chungking. At the same time Secretary Hull repeated an earlier statement that Japan's action was "a further step in the program of one country by armed force to impose its will upon a neighboring country." Further economic pressure on Japan was supplied by President Roosevelt's proclamation of Dec. 10, effective Dec. 30, placing iron ore, pig iron, ferro alloys, and certain iron and steel manufacturers and semi-manufacturers under export license requirements. While Japan was not mentioned, it was clear that she was the nation principally affected because of her purchase of increasingly large amounts of these materials for her war program.

LATIN AMERICA

President Roosevelt continued his efforts to promote the Good Neighbor policy in Latin America and to maintain the peace of the Western Hemisphere. At the 50th anniversary of the founding of the Pan American Union, he pointed with pride to the existing peace among the nations of the New World, due to the agreement to settle disputes by friendly negotiation. In concluding his address he said: "We are determined to continue on that way in friendship. We are determined that our mutual relations be built upon honor and good faith. We are determined to live in peace and to make that peace secure. We are determined to follow the path of free peoples to a civilization worthy of free men." A month later, on May 10, in addressing the Pan-American Scientific Congress, the President expressed his horror at the invasion of the Low Countries and issued a warning to the American nations to be on guard against a similar invasion. Characterizing himself and his audience as pacifists, he added that he believed that, if necessary, all would "act together to protect and defend by every means our science, our culture, our freedom and our civilization." The President's theme here, as on the other occasions, was that there could be no compromise between the totalitarian way of life and the democratic.

In July the Pan-American Conference of Foreign Ministers met at Havana for the purpose of safeguarding "the independence, the peace and the well-being of the American republics." German threat of economic penetration into South America had raised economic and defense problems for the United States. The problems which underlay much of the debate in the conference were: (1) the economic position of the Americas; (2) the status of European possessions in the New World; and (3) the defense of the Americas against foreign aggression. The most immediate issue was the status of the European colonies. Secretary Hull proposed a "collective trusteeship" through which, in case of emergency, the colonies could be governed until it was possible to return them to their original rulers or to grant them independence. This proposal was embodied in the agreements adopted by the conference.

Further evidence of the desire of the United States to bring the American nations into united action against a possible European foe was the invitation to the military leaders of these countries to visit the United States. During October, groups of them were conducted on tours of our national defense projects, the purpose being to impress them with the strength of United States defense efforts and with the need for a common front for what President Roosevelt termed "the defense of the Americas."

In order to improve friendly relations with Mexico, President Roosevelt named Henry A. Wallace, the Vice-President-elect, as his special representative at the ceremonies of the inauguration on Dec. 1 of General Avila Camacho as President of Mexico. In like manner, the President invited President Getulio Vargas of Brazil to pay an official visit to the United States. On Dec. 5, Secretary of the Treasury Morgenthau announced a decision to make a loan of $50,000,000 to Argentina for the purpose of stabilizing her currency. Secretary Cordell Hull described the loan as part of the collaboration among American nations to develop hemispheric economic defense. A few days later, on Dec. 11, Jesse Jones, Secretary of Commerce and Federal Loan Administrator, announced a $60,000,000 Export-Import Bank Loan to Argentina in addition to the loan already mentioned. At the same time Mr. Jones disclosed that the Export-Import Bank had authorized a $7,500,000 loan to Uruguay. The loans were designed to aid these countries in making purchases in the United States.

DOMESTIC POLICIES

In closing his annual address to Congress on Jan. 4, 1940 President Roosevelt expressed the hope that the year might "be pointed to by our children as another period when democracy justified its existence as the best instrument of government yet devised by mankind." He said that "with our program of social improvement started, we must continue to carry on the processes of recovery so as to preserve our gains and provide jobs at living wages," because of the significance of this progress on our national unity. He used his budget message of Jan. 4 to illustrate the changing trend in democratic processes. He cited the relatively low and constant level of expenditures throughout the 1920's as accurately reflecting the relatively minor role played by the government in those years and the substantial increase in the following decade as a reflection of the degree to which the country, in response to changing economic conditions and changing attitudes, had turned to government to meet social needs recognized by our citizenship. So, too, in laying before Congress a report of progress by the Tennessee Valley Authority, the President declared that "recreation in its broad sense is a definite factor in the improvement of the bodies and minds of our future citizens."

These activities and the deliberate use of government funds to put idle men and factories to work thus did not mean the end of private initiative. On the contrary, the unity of the American people and the preservation of democracy could be achieved best by the promotion of a harmonious relationship between the government and the individual. The President summed this up in his message of Dec. 10 to the Economic Club: "The freedoms that we must and will protect in the United States are the freedoms which will make the individual paramount in a true democracy. In our American way of life political and economic freedom go hand in hand. Our freedoms must include freedom from want, freedom from insecurity, and freedom from fear. I firmly believe that we can best secure these freedoms by government and private enterprise working together for these common objectives. In this joint effort there must be provided proper reward for labor, proper incentive for enterprise and a proper return on investment." To the delegates at the convention of the Farm Bureau Federation, meeting in Baltimore on Dec. 10, the President declared that mobilization of men and munitions alone would not effectively arm the country because there was required also "an equitable distribution of the wealth from our unparalleled material resources, help for the under-privileged, security for workers and farmers and whatever else that is necessary to keep democracy a dynamic force."

NATIONAL DEFENSE

Linked closely with his foreign policy was President Roosevelt's program for national defense. In message after message to Congress and in statements at his press conferences the President emphasized the danger to the United States and the Western Hemisphere of the spread of the totalitarian system and the need for greater defense measures. In an address to Congress on May 16 he somewhat dramatically pointed to the change in our geographical security brought about by the development of the airplane as an engine of war and declared that great additional production of aircraft was requisite. He said he would like to see the production capacity of the nation geared to turn out at least 50,000 planes a year. He asked for the appropriation of a large sum of money for national defense.

In an effort to coordinate the preparedness program, the President, on

May 28, appointed William S. Knudsen, Edward R. Stettinus, Jr., Sidney Hillman, Chester C. Davis, Ralph Budd, Leon Henderson, and Harriett Elliott as members of an Advisory Commission to the Council of National Defense. On May 26 the President delivered a radio address to the American people on the subject of national defense, reviewing what had already been done and promising government aid to private industry to speed production in necessary defense materials. He followed this on May 31 by a specific recommendation that Congress before its adjournment should grant him authority to call into active service "such portion of the National Guard as may be deemed necessary to maintain our position of neutrality and to safeguard the national defense." In response to this request, Congress passed the National Guard Act, approved Aug. 27, authorizing the President to call up the National Guard and Reserve Officers for one year's active service in the Western Hemisphere or possessions of the United States. The Selective Training and Service Act, approved Sept. 16, authorized him to select and induct into land and naval forces for training or service as many men between 21 and 35 as he considered necessary for national defense.

As a part of the Administration's hemisphere defense program, the White House announced in August the appointment of ten men—five Americans and five Canadians—to coordinate the defense of the northern half of the Western Hemisphere. Early in the year the President had criticized Congress for delaying military and commercial improvement of the Panama Canal by construction of a third set of locks which he had recommended as essential to the defense program. In a message of Dec. 5, urging the building of the Great Lakes-St. Lawrence Seaway, he likewise criticized those who had earlier opposed this project. He maintained that it was a vital necessity for national and continental defense and announced that he had allocated $1,000,000 of the defense funds made available by Congress, to make the necessary engineering surveys and preliminary plans in order that no time might be lost. He said he was conducting conversations with Canada to work out the international aspects of the development and would propose to Congress in January, 1941, "that it take the necessary steps toward the completion of this St. Lawrence seaway and power project, on which so much of our national safety and welfare depend."

On Dec. 20, President Roosevelt asked William S. Knudsen, a member of the Defense Commission, to serve as director of a new organization, an Office for Production Management for Defense. This office, the President explained, would be created by authority of the Reorganization Act of 1939. Sidney Hillman was made assistant director, and Secretary of War Henry L. Stimson and Secretary of the Navy Frank Knox were named as the other members. Three sub-divisions, according to the President, would handle production of raw materials, defense purchasing, and priorities on deliveries of war supplies. The new organization was expected to speed up the nation's production and to provide an adequate national defense.

COALITION CABINET

Rumors spread throughout the country that President Roosevelt planned to call several prominent Republicans into his Cabinet for the purpose of having a non-partisan defense administration. On the basis of these rumors, Alfred M. Landon, on the eve of a trip to Washington for a conversation with the President, declared himself opposed to any such coalition. At his press conference on May 24, a few days after Mr. Landon's statement, the President said that all talk of such a coalition was made out of whole cloth, yet on June 20, he nominated two Republicans to be members of his Cabinet. Henry L. Stimson of New York, named Secretary of War, had served in a similar capacity in the Cabinet of President Taft and also as Secretary of State under President Hoover. Colonel Frank Knox of Chicago, nominated Secretary of the Navy, was the Republican candidate for Vice-President in 1936. These nominations, the President declared in his message submitting them to the Senate, reflected "the overwhelming sentiment of the nation for national solidarity." Coming on the eve of the Republican national convention, the President's action aroused much discussion, hostile and otherwise. However, the Senate gave its consent, and the two new Cabinet members entered energetically upon the duties of their respective offices.

ADMINISTRATIVE REORGANIZATION

Acting under the authority granted to him by the Reorganization Act of 1939 the President presented to Congress Reorganization Plans Nos. III, IV and V. Part of Plan No. III which transferred the functions of the Civil Aeronautics Authority to an Administrator of Civil Aeronautics in the Department of Commerce, aroused much public and congressional criticism, partly because of the excellent record made under the Civil Aeronautics Authority and partly because of opposition to the alleged centralizing tendencies of the Roosevelt Administration. The plan was permitted to become effective, however. An entirely different reception greeted Plan No. V which transferred the immigration and naturalization functions from the Department of Labor to the Department of Justice. This was a measure required for national safety, the President said, but he added that while designed to afford more effective control over aliens, the proposal did not reflect any intention of depriving them of their civil liberties. This plan received speedy and hearty endorsement by Congress.

VETO OF WALTER-LOGAN BILL

As had been predicted, the President vetoed the Walter-Logan Bill. While agreeing with the professed objective of the bill, namely, the assurance of fairness in administrative proceedings, he said he was convinced that "in reality the effect of this bill would be to reverse and, to a large extent, cancel one of the most significant and useful trends of the twentieth century in legal administration" —the evolution of the administrative tribunal or agency. This tribunal he characterized as the "very heart of modern reform administration." Its opponents, and hence supporters of the Walter-Logan act, were lawyers "who see the administrative tribunal encroaching upon their exclusive prerogatives," and "powerful interests which are opposed to reforms that can only be made effective through the use of the administrative tribunal." In conclusion, the President stated that quite apart from the general philosophy of the bill, it would involve delays in the program of national defense and for this reason would require his disapproval at this particular time.

APPOINTMENT OF JUSTICE MURPHY

With the appointment in January of Attorney-General Frank Murphy to a place on the Supreme Court, President Roosevelt reached a goal for which he had striven throughout his Administration—that of having personally selected a majority of the entire court. The appointment of Associate Justice Murphy was desired by the President as a better assurance that New Deal legislation would receive more sympathetic consideration at the hands of the Supreme Court.

I. AMERICAN POLITICAL HISTORY

NATIONAL PERSONALITIES

By Harold M. Dorr

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FRANKLIN D. ROOSEVELT

The President furnished the mystery and much of the political drama of 1940. His silence on the third term issue served to keep aspiring Democrats quiet and ambitious newspaper men busy. The President is reported to have summed up the situation in the following words: "I, myself, am supposed to be a self-made riddle. . . . Most of the riddles in this town, however, are the ones posed for you in some solemn column . . . like fairy tales or bedtime stories calculated to keep unsuspecting children awake all night." The press continued to print "rumor has it" and "it is reliably reported" stories, disclosing the presidential mind on candidates and issues (see E. R. Lindley, *Washington Post,* March 4), disturbing to potential candidates yet satisfying the reading public. The President demanded the nomination of liberal candidates but revealed no political secrets in the first six months of the year.

Further speculation concerning the President's political intentions were aroused by his invitations to Landon, Knox, and other prominent Republicans to visit the White House to discuss matters of national importance. Amidst talk of a coalition government for the duration of the crisis, Landon is reported to have told Roosevelt that Republican cooperation would depend upon a presidential denial of third term ambitions. Roosevelt answered that he was too busy with important matters to prepare a political statement. Landon declined any appointment which may have been offered, but shortly thereafter two Republicans, Henry L. Stimson and Frank Knox, were taken into the Cabinet.

In the meantime a group of self-appointed managers began the "draft Roosevelt" movement to insure adequate delegate strength should the President not decline a third nomination. In spite of some threatened defections, organization leaders, reputedly pledged to Farley, enthusiastically endorsed the movement. Strong popular support was disclosed in the first of the state primaries. In May certain anti-third term Democrats declared that the nomination is "not only inevitable but essential," and by early June enough delegates were pledged to insure the nomination. When the convention assembled in July the only two remaining questions were: Will the President be renominated by acclamation? and, Will he dictate the second place nominee? The first of these questions found an answer in Farley's insistence upon free nominations. The second answer followed when the President made the nomination of Henry A. Wallace tantamount to a condition to his own acceptance.

In accepting the nomination the President said: ". . . it was my firm intention to turn over the responsibilities of government to other hands at the end of my term. . . ." But in view of changed world conditions, he now thought that the issue should be decided by the people "through the American method of a free election. Only the people themselves can draft a President." Thus the campaign was to continue as a "draft" movement. Wallace had been selected to defend the New Deal and to carry the issues to the people. The President planned to remain in Washington except for occasional "non-political" tours of the defense industries. This program was followed until late in the campaign. Finally as the Willkie attack became more bitter and more personal, the President entered the campaign to refute "deliberate falsifications of fact." In the first of his five scheduled speeches, the President declared: "I am an old campaigner, and I love a good fight." This he demonstrated in the ensuing ten days. In these appearances he called attention to the accelerated defense program; he promised continued aid to Britain; he accused the Republicans in Congress of sabotaging the preparedness program; he denied charges of foreign intrigue and secret agreements; and, he declared: "I will keep you out of war." The President retired to his Hyde Park home to deliver a long scheduled "fireside chat" on the eve of the election and to await the decision of the people.

HENRY A. WALLACE

In spite of his years of service in the Administration, the Secretary of Agriculture had never been accepted into the inner circles of the New Deal; and, thus, during the early months of political speculation, Wallace's name appeared only infrequently in the discussions of either the "draft Roosevelt" movement or the question of a successor should the President refuse the nomination. And, if his reception in Chicago were any index, the converted Republican was likewise unpopular with the rank and file of Democratic leaders. Nevertheless, upon the insistence of Roosevelt, the convention, amidst a mixed chorus of booes for Wallace and cheers for McNutt, proceeded to name Wallace as the vice-presidential candidate on the first roll call.

Some 20 days after his nomination (Aug. 15) Wallace handed his resignation, effective as of Sept. 5, to the President and began active preparations, including a series of White House conferences, to assume the responsibility for presenting the issues to the people. His campaign was formally opened Aug. 29 with an acceptance speech in Des Moines, Ia. After a limited "scouting tour" of the Middle West, Wallace returned to Washington to report progress. He then swung into his planned itinerary in which he literally tracked the Republican candidate throughout the first month of his campaign. Wallace defended the President and New Deal policies and attacked the Republicans, declaring that the nomination of Willkie was a "continuation of the struggle between Wall Street and main street which has been going on in our country for more than 70 years." In his acceptance speech Wallace labelled the Republicans "the party of appeasement" and continued to declare that the "totalitarian powers will back in every possible way" the defeat of Roosevelt. Wallace carried the campaign as far east as Albany, N. Y. (Oct. 28), but abandoned a proposed tour of New England when the President decided to speak in Boston. Wallace turned back into the Middle West and concluded his campaign with scheduled speeches in Pennsylvania, Ohio, Michigan, Nebraska, and Iowa.

It was generally conceded that the President's insistence upon the nomination of Wallace meant that the Vice-President was to be charged with active governmental responsibilities. Political speculations were turned in the direction of improved intra-American relations when Wallace was named as the official representative to attend the inaugural of the Mexican President-elect, General Avila Camacho. Some commentators predicted that Wallace would undertake to unify continental defenses and would serve as coordinator of American trade in the event of a Hitler victory in Europe. Be that as it may, Wallace took advantage of his trip to Mexico City to place a wreath upon the memorial to young cadets who died in the defense of Chapultepec Castle, thereby emphasizing the "good neighbor" policy in America.

WENDELL L. WILLKIE

Although Willkie was first mentioned as a potential candidate for the presidency by Arthur Krock early in 1939 (*The New York Times,* Feb. 23, 1939), his candidacy was not taken seriously until early in 1940. In February he said (Wooster, O.) that he was not a candidate but could not refuse the nomination were it offered him. In the following weeks he appeared on a popular radio program, debated with Attorney General Jackson and Secretary of the Interior Ickes, and otherwise courted popular attention. Before the end of April he had granted permission to friends to undertake a formal campaign. In May he undertook a test tour in the course of which he touched upon many phases of foreign and domestic policies. In spite of these activities, a formal announcement of his campaign was postponed. Finally, on June 13, before a large audience gathered at the National Press Club (Washington, D.C.), Willkie announced that his name would be placed before the Republican convention by Representative Charles A. Halleck (Indiana).

Willkie's campaign for the nomination is almost without parallel. An avowed Democrat until the middle 1930's, he had never held public office and now, in seeking the Republican nomination, he demonstrated political independence and made no attempt to secure the active support of any organized faction of that party. In fact, he alienated Republican leaders in Congress with his pronouncements on foreign policy and New Deal social legislation. His campaign was modest and managed by political "amateurs."

Willkie went to Philadelphia on the eve of the convention with little delegate support and no real organization but with the idea of talking to as many people as would listen. On the first ballot Willkie received 105 votes, gained strength steadily, and on the sixth roll call rode into the nomination on a "bandwagon stampede." Although the nomination won popular acclaim, it was not enthusiastically received by organization Republicans. They would have preferred a candidate who would face the voters upon the Republican record in Congress. However, they recognized Willkie's personal popularity and hence his ability to challenge Roosevelt, if the latter should accept a third term nomination.

The tone and tactics of the campaign followed the pattern set in winning the nomination. Willkie demonstrated political independence, emphasized personalities and issues, and left organizational problems to others. Depending upon his physical stamina and his ability as an extemporaneous speaker, Willkie's plan was to see and be seen by as many people as time would permit. This strategy demanded numerous major and innumerable informal appearances. Beginning with his acceptance speech (Elmwood, Ind., Aug. 17), Willkie's itinerary carried him through the agricultural states, into the Southwest, up the Pacific Coast, back into the industrial Middle West and concluded with a swing around a somewhat distorted figure-eight cutting northeast through the states east of the Mississippi river and north of Tennessee.

At the outset Willkie created alarm by his disregard for advice, his enthusiasm for ready answers, his refusal to assail New Deal legislation, and a serious throat ailment. However, as the campaign got under way, he departed less frequently from prepared statements, kept his appointments more punctually, improved his speaking style, and turned to direct assaults upon the President and many of his policies. With Willkie assuming the role of a crusader for democracy, preparedness and peace, the campaign became both strenuous and bitter.

In the course of his many speeches the Republican candidate supported in large part the Administration's foreign policy, including aid to Britain, but accused the President of "meddling" and "blundering" and charged that Roosevelt would lead America into the European war. Willkie accepted the basic principles underlying domestic policies, cited need for some revisions and extensions, but charged the New Deal with mismanagement, extravagance and maladministration. As the campaign progressed he showed signs of irritation and frequently accused the President of "broken promises," of loss of "confidence in the people," of inciting "class hatreds," and of entering into "secret international agreements." Willkie conducted a vigorous campaign and was rewarded with the largest popular vote ever given a candidate of his party.

After the election he advocated in a nationwide broadcast national unity and continued aid to Britain. However, he declared coalition to be incompatible with the American system of government and recommended the creation of a strong "loyal opposition."

CHARLES L. McNARY

The selection of Senator McNary of Oregon as the Republican vice-presidential candidate was widely regarded as a sound choice. It was anticipated that he would appeal to those factions of the party which might be alienated by the views of the leading candidate. A native of the Northwest, McNary was and had been for many years Senate leader of the "farm bloc," was recognized as a public power man, and was known to oppose reciprocal trade agreements and some other matters of foreign affairs to which Willkie subscribed. In fact, McNary is reported to have been opposed to Willkie's nomination and to have accepted second place on the ticket with great reluctance and only because of strong pressure from his home state. When informed of his nomination, he said: "Of course I am proud of the confidence reposed in me by the convention. I wish they'd imposed the chore on someone else but I'll be a good soldier and do the best I can." He, nevertheless, felt that he had been placed in an embarrassing position and said that he would take a strictly passive attitude toward the campaign, limiting his activities to a swing through those states where he had a strong personal following. However, after his first conference with Willkie, McNary's attitude changed and he became optimistic concerning the possibilities of a Republican victory.

In his acceptance speech (Salem, Ore., Aug. 27), McNary criticized the domestic policies of the New Deal and declared that the Administration had hindered progress by its assumption that America "is finished." He advised the people to accept as leaders those who "wish again to see the United States a going concern." He made no attempt to conceal differences between his and Willkie's points of view. Throughout the campaign he placed emphasis upon domestic policies, urging that attention be given to "the home front" to insure that "enduring values" are not impaired under cover of an emergency. He defended the Republicans' record in Congress and attacked the reciprocal trade agreement, charging that they "have lowered our resistance to an afterwar flood of cheap imports." McNary's activities were limited to six or eight major speeches and numerous informal appearances in the middle and far western states.

JAMES A. FARLEY

Among the political rumors of 1939, which were continued into the past year, none was more persistent than the stories of an impending break between the President and the National Chairman. Although there is no tangible evidence of any open break, the succession of events must have contributed toward making the relationship embarrassing and insured Farley's retirement from public life. In late January, at Winston-Salem, N. C., Farley forecast a series of important political events when he said: "I am a partisan . . . but I love my country better than I love the Democratic party." Because of his personal ambitions and political activities, his resignation as National Chairman was demanded by a small minority within the party. Further, on March 4 a story was circulated in which the President was quoted to the effect that Farley's religion disqualified him as a serious contender for a place on the ticket. After waiting almost two weeks for the anticipated White House denial, Farley declared in a public address: "We must never permit the ideals of this Republic to sink to a point where every American father and mother, regardless of race, color, or creed, cannot look proudly into the cradle of their newborn babe and see a future President of the United States." Three days later the President denied the truth of the story. Farley announced his candidacy before the end of the month. "Let me say," he declared, "that my name will be presented to the Democratic National Convention at Chicago, and that's that." (The above is presented as a mere sequence of events and not as a cause and effect argument). Garner supporters expressed a desire to bring Garner and Farley together on an anti-third term ticket and frequent conferences between the two men were reported. There is little substantial evidence, however, to support the assertion that they conspired either to prevent the President's renomination or to dictate the vice-presidential nomination.

Farley's campaign was quiet and unspectacular. His excursions into the outlying states were regarded as partially personal and partially official. Organizations in several states indicated some interest in the candidacy and several slates of delegates were conditionally pledged to his support. Farley's anticipated strength among the organization Democrats failed to materialize as the Guffeys, the Hagues, and the Kelleys threw their strength behind the "draft" movement. With Roosevelt forces in complete control of the convention, Farley ruled against nomination by acclamation and his name was presented by Senator Glass. Farley received a total of 72 9/10 votes, and thereafter moved to make the President's nomination unanimous.

In his valedictory Farley pledged "full support" to the Roosevelt-Wallace ticket and formally announced his retirement from public life. He relinquished his position as National Chairman on Aug. 17 and retired from the Cabinet two weeks later. Although he took no active part in the campaign, he frequently conferred with his successor and publicly announced his intention to vote a straight Democratic ticket.

CORDELL HULL

In spite of the exactions imposed upon his Department by a world at war, the Secretary of State was more conspicuous, politically, than during the preceding year. In the early months of 1940 his name figured prominently in the presidential speculations reported in the newspapers. Talk of a Hull-Farley ticket was rife. These rumors of political preferment persisted in spite of frequent denials and Hull's refusal to seek delegate support. Hull urged his friends not to work in his behalf for fear that such activities might impair his usefulness as Secretary of State.

In requesting an extension of time in which to negotiate reciprocal trade agreements, Hull contended that these agreements constituted America's greatest contribution to world order. Nettled by politically inspired attacks in Congress upon his policy, Hull answered in kind. When Senator Vandenberg proposed a Congressional investigation, Hull replied that he would welcome such an investigation, but added: "It would hardly be useful, however, to entrust this investigation exclusively to those who supported and voted for the Hawley-Smoot embargo policy."

Although he was not active in the campaign following the renomination of President Roosevelt, Hull spoke out in support of the preparedness program and the Administration's foreign policies. In answering Willkie's "Munich charge", he accused the Republican candidate with being "grossly ignorant of the history of the last few years." Two weeks later he denounced "misrepresentation" and deplored the attempts "to create fear, prejudice and suspicion and to produce general confusion." Obviously disturbed by the bitterness of the Republican attacks, he declared it would be a national tragedy if the election should "turn on spurious and counterfeit issues of foreign policy artificially created to mislead the voters." In spite of his participation in this heated exchange of charges and counter-charges, Hull retained the respect and confidence of Democrats and Republicans alike.

JOHN N. GARNER

The Vice-President was widely acclaimed as the outstanding "anti-third term" Democrat, and because of his outspoken opposition to the New Deal and his aggressiveness, Garner was regarded as the logical man to head the "stop-Roosevelt" movement. Although he announced his candidacy, many observers were convinced that Garner was more anxious to achieve a position of influence in the convention than actually to capture the nomination. Whatever his intentions may have been, his strength failed to materialize in the form of delegate support. After showing some strength in certain sections, he was overwhelmingly defeated by Roosevelt in the Wisconsin and Illinois primaries (three and six to one, respectively). Interest in his campaign lagged, and Garner was actually confronted with a struggle for the control of delegates in Texas. However, Jesse Jones and Sam Rayburn interceded, and Garner was left in temporary control of his home state. In spite of this demonstrated weakness, Garner's name was placed in nomination. He closed his active political career by "forgetting" to vote in the November election, and returning to Washington at the close of the year to preside over the Senate in the opening sessions of the 77th Congress.

ROBERT A. TAFT

The Ohio Senator's position on both foreign and domestic policies, which he formulated and set forth in 1939, underwent little revision as he moved through the last six months of his campaign to capture the Republican presidential nomination. He continued his assaults upon New Deal domestic policy, emphasizing especially the unbalanced budget, deficit spending, and fiscal mismanagement. He urged reductions in subsidies to local units of government, a curtailed public works program, and local administration of the relief and social security programs. "Bureaucratic regulation is choking the whole initiative and progress of America," Taft declared in urging the repeal or amendment of the regulatory and restrictive laws blanketing agriculture, business, and labor. He admitted the need for agricultural aid and the necessity for some business regulation, but, he argued, the government should deal with specific abuses as they appeared rather than entangle all private enterprise in sweeping regulations.

Although bitter in his attacks upon the President's handling of foreign problems, Taft's foreign policy resembled closely that of the Administration. He urged moderation and every precaution to keep America out of war. He favored amending but not repealing the policy of trade agreements; he favored aid to England and supported the preparedness program with the declaration: "We should go to war, if necessary, to prevent" Hitler from getting a foothold in the Western Hemisphere. Taft opposed the proposed conscription of wealth, and, though favoring a large and well-trained army, he opposed the Burke-Wadsworth conscription bill and introduced a substitute measure providing for a permanent system of voluntary training.

In spite of the feeling at the end of the year (1939) that he had lost ground to Dewey, Taft showed no inclination to revise his campaign methods. He continued his extensive tours, speaking frequently and saying what he thought without pretense or bombast. He courted southern delegates, concentrated upon winning organization support, and avoided primary contests. His campaign was apparently well financed and professionally managed. Because of the increasing seriousness of the foreign situation, Taft by reason of his experience came into the convention on a rising tide of popular approval. Whether or not he could have, in the absence of Willkie, captured the nomination is a matter of political conjecture. Albeit, in the three cornered fight he outlasted Dewey in the balloting and on the fifth ballot stood as Willkie's lone challenger.

Following the convention, there were rumors of friction between the Taft and Willkie organizations. However, at least a partial reconciliation was effected, and the Taft organization engaged in the campaign. Taft made several major speeches in support of the Republican candidate.

ARTHUR H. VANDENBERG

Senator Vandenberg of Michigan, recognized as one of the Republican leaders in Congress, one of the most influential men in his party, and one of the most consistent critics of the New Deal, did not develop into one of the leading candidates for the Republican presidential nomination. Vandenberg's poor showing, enjoying as he did the confidence of organization leaders, may be attributed to three things: (1) his own attitude toward the nomination, (2) the death of Senator Borah, and (3) the popularity of President Roosevelt.

Vandenberg said that he could not refuse the nomination, but, believing as he did that the office should seek the man, he would refuse to campaign for the nomination. In spite of this pronouncement he did undertake a limited campaign ("such as the nature of his duties in Washington would permit") and contested with rather disastrous results for delegate support in several state primaries. He did not have an elaborate organization, and, after these initial encounters, he regarded himself as an available candidate in case of a deadlock in the convention. Because of his earlier record and pronouncements, the death of Senator Borah left Vandenberg as the recognized Republican leader of the "isolationist bloc" in Congress. With mounting popular interest in foreign affairs, Vandenberg was unable to shift his position rapidly enough to keep ahead of public opinion, and thus, at the time of the convention, his expressed views on foreign policy were not acceptable. Vandenberg was not well known to the rank and file of the party outside his home state and his primary contests demonstrated his inability to stir public imagination. The Republicans needed a candidate with "political color" and popular appeal.

He again closed the way to a second place nomination with the assertion: "I can be of greater service to the people in the United States [as a member of the Senate] than serving as presiding officer." Declaring "I am here to stop Third-Term Roosevelt for the sake of America," Vandenberg refused to become openly involved in convention politics, but released the Michigan delegates to permit them to cast the deciding votes for Willkie. In spite of a strenuous campaign to insure his reëlection to the Senate, Vandenberg campaigned vigorously both within and outside Michigan for the national ticket. After the election he joined with others in demanding national unity but warned against a "rubber-stamp" unity which would silence "constructive criticism."

FIORELLO H. LA GUARDIA

New York's fiery mayor continued his liberal campaign through another year. Opening the year with a series of conferences with other known liberals, he demanded the nomination of acceptable candidates under the implied threat of a liberal coalition and an independent nomination. If La Guardia harbored personal political aspirations, he kept his own counsel. Following the nominations, both parties bid for his active support. Finally on Sept. 12, he broke his silence with the announcement: "I prefer Mr. Roosevelt with his known faults to Mr. Willkie with his unknown virtues." Concerned by the rising tide of Republican support, La Guardia organized, with the aid of other Roosevelt supporters, the National Committee of Independent Voters, accepted the chairmanship of the organization, and became active in the campaign. In a series of colorful speeches, he attacked both Willkie's sincerity and his campaign tactics. After the election (Nov. 9), he announced that his committee would be kept "alive and active" to continue the fight for the preservation of "the democratic forms of government." His conception of his future position in the American political scene remains otherwise undisclosed.

In late August the President appointed La Guardia to the United States-Canadian Joint Defense Board and made him the chairman of the American delegation. In this capacity he inspected hemisphere defense zones and held a series of conferences in both the United States and Canada to further joint defense proposals.

FRANK KNOX

The Republican vice-presidential candidate (1936) captured national attention in supporting the Administration's foreign policies and in urging all possible military aid short of soldiers for France and England. Following rumors of the President's proposal to create a coalition cabinet for the duration of the crisis and Landon's decision not to serve, Knox was at once mentioned as the prominent Republican most likely to accept such an invitation. On June 20, the President named Knox to head the Navy Department and at the same time appointed Henry L. Stimson to the War Department. The views of both were well known. Frequently called "armed interventionists," their appointments were viewed with alarm in many quarters. The appointments, announced on the eve of the Republican convention, created immediate repercussions in Philadelphia. Hamilton, with the approval of the National Committee, read both men out of the party. Knox tendered his resignation as a delegate-at-large from Illinois. Repercussions in Congress were no less pronounced. Public hearings were ordered. However, McNary recommended that the nominations be endorsed by Republican Senators. After favorable but divided reports by the respective committees and some debate, the appointments were confirmed.

Entering upon the discharge of his function with enthusiasm and zeal, Knox promised one of the most vigorous administrations in the history of the Department. He became familiar with the management of his office, visited national defenses, including the Pacific and Canal Zone bases, and became a leading exponent of the preparedness program. Although he disclaimed any desire to intervene in European affairs, he lost no opportunity to emphasize the invincibility of American naval strength. Describing the navy as both "strong" and "ready," he declared that this country would "not appease anyone on earth"; yet, he predicted that the next five years would "test our endurance as free men in a free country."

Knox took no part in the presidential campaign but interpreted (Nov. 6) the reëlection of Roosevelt as "an unmistakable mandate" to "continue a firm, vigorous foreign policy" and "an accelerated program of national defense."

HERBERT HOOVER

With famine and starvation stalking the devastated countries of Europe and with the United States in the midst of a fiercely contested presidential campaign, Hoover was busy with public affairs throughout the year. As head of the Finnish Relief Commission, he collected and delivered millions of dollars worth of relief, supported Roosevelt's recommendation for a loan to Finland, and urged that surplus foods be sent to "such countries as Finland and Poland" without monetary obligation. With the spread of the European war, Hoover prophesied that American farm surpluses would again be required for the relief of starving people throughout the world; and late in the year he was named honorary chairman of the National Committee on Food for the Five Small Democracies of Europe. Fixing blame upon Russia for the hapless plight of the Finnish people, he recommended (*Collier's Magazine*) the withdrawal of the American ambassador and a gradual tapering off of all relations with Russia. He accused the Administration, in the recognition of Russia (1933), of unwittingly abetting Moscow in its attempt "to destroy democratic government everywhere."

Relief activities did not prevent Hoover's participation in either the pre- or post-convention campaigns. He never indicated that he would either seek or attempt to control the Republican nomination, yet his activities led some political observers to conclude that a candidate could not be named without Hoover's endorsement. In spite of these predictions, the ex-President made no open attempt to control the convention. However, it was reported that Willkie owed his nomination to Landon whose support was prompted by Hoover's bitter "backstage" attacks upon the candidate.

Hoover was active throughout the campaign but demonstrated far greater enthusiasm in denouncing the Administration than in endorsing the Republican candidate. In his eyes the philosophy of the New Deal constitutes a challenge to our peace and safety, our economic structure, and our democratic institutions. He charged the President with "cultivating hysteria at home and sticking pins in tigers abroad." Speaking of New Deal policies, he said: "You cannot mix these ideas into a society of free men and women." He criticized the national defense program, warned against our being drawn into participation in the war, and urged the American people to prepare for the economic struggle that would follow the conflict. Whatever may be his influence within the ranks of his party, former President Hoover remains one of the most consistent and bitter of the New Deal's critics.

THOMAS E. DEWEY

As had been anticipated, Dewey, in attempting to storm the Republican convention as the favorite of the rank and file of the party, undertook a strenuous and extensive campaign. Capitalizing upon his reputation as a hard-hitting fighter, he carried his prosecuting tactics in the campaign and made his speeches a series of stinging indictments of the New Deal. He condemned the Administration both specifically and generally, charging "broken promises, contempt for the constitution, and flagrant abuse of powers." More specifically, he accused the New Deal of deliberately attempting to conceal its domestic failures in a fog of foreign issues and of leading America into war in the absence of adequate national defenses. He described the Roosevelt fiscal policies in terms of "unbalanced budgets," "maladministration," and "misrepresentation."

Unfortunately, Dewey's indictments were far more convincing than his own constructive program which, from some points of view, appeared to develop with the momentum of the campaign and to take color from the particular locale. Likewise unfortunate for Dewey was his inexperience, especially in the field of foreign affairs, his inability to win either the confidence or support of the Old Guard Republicans, and the increasing realization that the Republican candidate would be compelled to face Roosevelt on issues of foreign policy.

Backed by an excellent and handsomely financed organization, Dewey came into the convention with substantial delegate support. However, this support, pledged largely in early spring primaries, proved to be more apparent than real, and the vulnerability of Dewey's position was recognized even before the convention was completely organized. With many of his pledged delegates seeking an opportunity to desert his candidacy, it was generally conceded that Dewey could not win the nomination unless he secured a majority within the limits of three roll calls. As had been anticipated, Dewey's maximum strength (360 votes) was registered on the first ballot; he faded on the next two and was definitely eliminated on the fourth roll call.

After the nomination Dewey's organization was placed at the disposal of Willkie, and Dewey made a series of speeches in support of the Republican candidate. Dewey announced that he would not seek reëlection to the office of District Attorney. He is still a young man, however, and the people of New York will elect a governor before the opening of the next presidential campaign.

JOHN L. LEWIS

Although the past two years had witnessed ever increasing differences between Roosevelt and Lewis concerning labor's position in the Administration, few were prepared for the abrupt manner in which the C.I.O. leader announced his complete break with the President. In a carefully prepared address delivered in Columbus, O. (Jan. 24), Lewis charged that New Deal leaders "have not preserved faith" with American labor, and concluded that if the Democratic convention "could be coerced or dragooned" into renominating Roosevelt, "his candidacy would result in ignominious defeat." While observers were speculating upon the seriousness of the break, Lewis began a campaign to consolidate underprivileged groups into a united opposition to the New Deal, and expressed a willingness to create a new party to insure the election of a president known to be friendly to the best interest of these groups. However, unionized labor demonstrated little interest in the crusade and other liberal groups were rapidly being organized in support of the Administration. Further, Senator Wheeler, Lewis' choice as Roosevelt's successor, refused either to challenge the President in the Democratic convention or to accept an independent nomination. Lewis made an unexpected appearance before the Republican platform committee and thereafter kept his political intention secret until rather late in the campaign.

Speaking from Washington (Oct. 25) over three networks with 322 outlets, he urged labor and the underprivileged groups to throw their support to Wendell Willkie. Speaking only as "a citizen and an American," he chided the President for his lust for war, his broken promises and his craving for power, and declared that his reëlection "would be a national evil of first magnitude." Lewis said that he would interpret the refusal of C.I.O. unions to accept his advice "as a vote of no confidence," and, in case of such refusal, he threatened: "[I] will retire as president of the Congress of Industrial Organizations, at its convention in November." Labor, with few exceptions, responded with a series of resolutions endorsing the President. Thus ended a chapter in the life of labor's most colorful leader. In spite of reported plans to "draft" him, Lewis kept his promise to retire as president of C.I.O., but retained his position as president of the United Mine Workers.

BURTON K. WHEELER

At the beginning of the year Wheeler, widely recognized as a liberal and a non-interventionist, was a leading candidate for the Democratic presidential nomination. He was strongly supported by anti-war and isolationist groups, had the tentative endorsement of certain liberals, and was favorably regarded by organized labor. Although he refused to enter primary contests for delegate support or to join in any "stop Roosevelt" movement, Wheeler must have regarded himself as an active candidate until shortly before the convening of the convention. In the early months of the year he expressed clearly his attitude toward Roosevelt's position. He declared that the latter's silence could "lead only to disaster" and that it would be "extremely difficult" to reelect Roosevelt should he be renominated. Nevertheless, Wheeler said that, even though he had always been opposed to third terms, he would support the party in case of a Roosevelt nomination.

In an early bid for the support of the C.I.O., Wheeler addressed the United Mine Workers convention and impliedly criticized New Deal domestic policies in naming unemployment as the nation's most pressing problem. Some time later he sought support from all under-privileged groups. With special reference to agriculture, he warned that social unrest so common in Europe would invade America "unless each of our citizens is assured the economic rights which are a promise of American life." In St. Louis to address a peace rally, Wheeler made an unexpected appearance with Lewis and Dr. Townsend at a "Townsend" convention and joined in a discussion of the possibilities of an independent nomination.

In the Senate, Wheeler (Montana) consistently opposed intervention in European affairs and activities which might be interpreted as unneutral under international law or existing legislation. He favored the acquisition of Atlantic naval bases, but opposed the "cruiser" exchange and the conscription law. He joined with others in insisting that the United States take steps to compel a "negotiated peace," and at the close of the year he appeared as the most formidable opponent of unlimited aid to Britain.

THE YEAR IN CONGRESS

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THE PRESIDENT AND CONGRESS

The relations between the President and Congress during 1940 were peculiarly interesting because they were connected with a situation unique in American history. Executive party leadership at the tag end of a second term is traditionally ineffective. Dissenting members of the President's party have nothing to lose by opposing him and even his former adherents, having little to gain politically by supporting him, are often but tepid in their loyalty. The year 1940, however, was no conventional executive "fifth act." Early in the year it became apparent that Mr. Roosevelt was toying with the idea of expanding his performance into a trilogy, and by midyear the decisive step had been taken. This was one vital reason why a somewhat more complaisant Congress might have been expected. The second, of course, was the sudden realization that effective national defense, while it did not call for Congressional subservience, did call for Congressional unity and expedition.

On the whole both of these factors seem to have had their effect, but the nature of Mr. Roosevelt's program made it somewhat difficult at times to separate the two. Although in his annual message he hinted at expansion of social security and public health programs, at extension of civil service, at the solution of conservation and transportation problems, even then he asked specifically only for the continuance of his trade agreements' powers, for an enormously increased defense program, and for emergency defense taxes. As the year went on, the defense program, with all its ramifications, became more and more the main motif of executive policy, and the element of purely political loyalty more and more difficult to segregate in Congressional voting.

As an introduction to this section on executive-legislative relationships it should be mentioned that when the third session of the 76th Congress convened on Jan. 3, 1940, the Democratic preponderance was only negligibly less than in 1939. There were still 258 Democrats to 164 Republicans in the House; 69 Democrats to 23 Republicans in the Senate. Also in the House were two Progressives, one

Farmer Laborite, one American Laborite. When in the course of the session, eight of the nine vacancies were filled, two Democrats and six Republicans were added to the above totals. Of the four Senators not included in the major party totals, one was a Progressive, one an Independent, two were Farmer Laborites.

Unquestionably many of the Congressional votes were divided on party lines. For instance, the three-year extension of the President's power to negotiate reciprocal trade treaties passed the House on Feb. 23 by a vote of 218 to 168, with only five Republicans favoring it and only 20 Democrats in opposition. In the Senate on April 5 not one Republican was among the 42 who supported the bill. Moreover, every voting Republican Senator favored the amendment requiring Senatorial confirmation of such trade pacts and, when that amendment was lost, every voting Republican Senator except one favored an extension limited to one year. Not a single Republican vote in the Senate, and only one in the House, was cast against the "Baby Hatch Act," although a large majority of House Democrats opposed it, and Democrats in the Senate approved it by only the small margin of seven votes. The second expansion of the Export-Import Bank was opposed by every voting Republican Senator and by 130 of the 134 voting House Republicans, while it was favored overwhelmingly by Democrats in both houses. House Democrats favored, seven to one, the Ramspeck Civil Service Bill, House Republicans registered three unfavorable for each favorable vote. Party splits in the House were also evident over the farm parity payments, CCC expansion, and executive reorganization plan No. IV, with the Democrats supporting and the Republicans opposing all these measures.

Mr. Roosevelt's attitude toward the Baby Hatch Act is not precisely known; he certainly favored farm parity payments, only qualifying his approval by a request that the appropriation be accompanied by a compensatory tax levy; and, with these qualified exceptions the Democratic vote on all the above issues was definitely a vote in favor of expressed executive policy.

On practically every major defense issue there was not only strong support of executive policy but also almost complete unity in Congress. The only outstanding exception to this situation was the action on conscription, and there is considerable question whether the Burke-Wadsworth Bill, at least in the form adopted, did have the President's unqualified approval. In any event, though it finally passed both houses by an almost 2-to-1 majority, House Republicans overwhelmingly favored a "60-day trial period" for voluntary enlistments, and continued to the end to oppose the measure by a 2-to-1 vote. However, this unity came relatively late in the session. The House, to be sure, passed a $1,300,000,000 Navy appropriation bill in mid-February but final Senate approval did not come until the end of May, and it was June before the conference report was accepted. The debate on the first military appropriation bill did not begin until April. With the end of the Battle of France and the beginning of the Battle of Britain both the general public and Congress seem to have been shocked into a consciousness that the European conflict was no longer merely a power contest in which one might register more or less disinterested support of one or the other team but, for the bystanders, an increasingly dangerous game in which the ball might go out of bounds and injure the spectators. The lethargy with which President Roosevelt's defense program had initially been greeted gave way to vigorous action. The enormously important Defense Tax Bill became law on June 25, 15 days after it was introduced in the House by Representative Doughton. It had passed the House 396 to 6, the Senate, 45 to 21. The importance of this unity is obvious when one considers that the raising of the debt limitation by that act involves the whole bitterly disputed question of "deficit spending."

Thus far the third session of the 76th Congress was characterized by some of the party splits found in all sessions, but votes on almost all defense issues were characterized by a high degree of interparty unity. The most difficult question to solve is the effect of the President's candidacy and re-election on his control of the Democratic members of Congress. The urgency of the defense program was realized at almost the precise time when the campaign issues became clarified. The relative force of peculiarly "political" considerations in the Democratic votes after May or June is hard to evaluate, simply because with few exceptions the latter part of the session was devoted to questions concerning defense. It is true that most of the presidential "defeats" came fairly early. The urgent request for an aggressive defense program and for special defense taxes was largely ignored for several months. Two presidential vetoes of a bridge bill which involved a new Federal policy of contributing to the construction costs of certain interstate bridges and of a veterans' pension bill were overridden. In April the House passed, 282 to 96, the Walter-Logan Administrative Procedure Bill which made decisions of some quasi-judicial agencies, such as the NLRB, subject to court review. This bill was notoriously obnoxious to the Administration. Early in May enough House Democrats joined with the Republicans to disapprove, 232 to 153, the Reorganization Plan No. IV. The Senate did not concur, and the plan went into effect.

However, the drastic amendments to the NLRB acts were overwhelmingly approved by the House in June at the same time that that body was following executive leadership on defense measures, and as late as mid-December the Senate concurred in House approval of the Walter-Logan Administrative Procedure Bill mentioned above. It is true that the President vetoed the bill on Dec. 18 and the House failed to override the veto, but it seems apparent that the 76th Congress was determined to go out of existence proving, by other means than its flat refusal to adjourn, the inapplicability of the "dictator" charge.

This refusal to adjourn, which lengthened the Session out to a record 367 days, was a definite indication that Congress did not "trust" the President. Specifically, it feared that his foreign policy would lead the country into war, and it determined to remain on his doorstep right up to the day when the 77th Congress convened. The year-long session was particularly remarkable in a presidential election year. There was of course a wholesale homeward drift of Senators and Representatives in October, and meetings following the election were consistently short-handed.

APPROPRIATIONS

The budget message of Jan. 4, 1940 outlined what was, in effect, an attempt at economy and budget balancing. New taxes designed to add $450,000,000 of revenue were recommended to help finance the emergency defense program, and reductions in WPA, PWA, and agricultural program appropriations, as well as in many other "New Deal" expenditures, were suggested. The following budget, including defense expenditures, totalled, it will be noted, $8,424,000,000. This figure is $5,000,000,000 less than the 1939 appropriations.

In the President's words, these figures translated "from forensics to national needs" represent approximately the following estimated expenditures:

National Defense (including emergency)	$1,800,000,000
Work Relief (including WPA, NYA, CCC, and Farm Security Grants)	1,300,000,000
Agricultural programs	900,000,000
Public Works and Investments	1,100,000,000
Pensions, Retirements, Social Assistance Programs	1,200,000,000
Interest on the Public Debt	1,100,000,000
Regular Operating Expenses	1,000,000,000
	$8,400,000,000

1941 BUDGET

Legislative, Judicial, and Executive	
Legislative	$23,045,700
Judicial	10,973,000
Executive	3,573,700
	$37,592,400
Civil Departments and Agencies	
Agriculture	$142,930,918
Commerce	33,591,500
Interior	70,446,900
Justice	39,020,300
Labor	21,520,100
State	18,970,000
Treasury	164,398,260
War (nonmilitary)	45,622,000
Panama Canal	14,560,000
Post Office—deficiency	56,972,832
D. C.	6,000,000
CAA	28,309,000
Federal Loan Agency	8,340,000
Federal Security Agency	50,757,000
Federal Works Agency	42,315,500
U. S. Maritime Commission	149,486,000
Other independent offices	58,999,300
	$952,239,610
Public Works Program	
FWA	$229,850,000
National Advisory Committee for Aeronautics	4,500,000
TVA	40,000,000
Veterans' Administration	3,000,000
Department of Agriculture	9,150,000
Commerce	000
Interior	78,246,300
Justice	435,000
Navy	50,000,000
State	2,700,000
War	223,400,000
	$641,281,300
National Defense	
Navy	$851,751,660
War	687,693,500
	$1,539,445,160
Veterans' Pensions and Benefits	$560,669,500
Aids to Agriculture	
AAA	$861,600,000
Commodity Credit Corporation	000[1]
Farm Tenant Act	34,000,000
Federal Farm Mortgage Corporation	000[2]
Federal Land Banks	000[3]
Farm Security Administration	000[4]
Farm Credit Administration	8,185,000
	$903,785,000
	(reduction of over $400 million)
Aids to Youth	
CCC	$225,000,000
NYA	83,000,000
	$308,000,000
Social Security	
Administrative expenses	$27,027,000
Grants to States	409,850,000
	$436,877,000
Work Relief	
WPA	$ 000[5]
PWA	117,500,000[6]
Other	5,250,000
	$122,750,000
Refunds	$ 71,011,900
Interest on Public Debt	1,100,000,000
Transfers to Trust Accounts	225,215,000
Supplemental	
General	100,000,000
Relief	1,125,000,000
Total exclusive of emergency defense	$8,123,866,870
Emergency National Defense	
Department of Justice	$ 2,400,000
Navy	135,005,700
Treasury	7,060,000
War	121,359,000
Public Works	
Navy	1,500,000
War	33,000,000
	$300,324,700
	$8,424,191,570

[1] Last year $119,600,000.
[2] Last year $7,500,000.
[3] Last year $29,500,000.
[4] Last year $156,000,000.
[5] Last year, $1,400,000,000.
[6] Last year, $373,400,000.

However, even when he submitted this budget the President stated that he might be forced to ask for additional work relief funds and for money to finance parity payments to farmers if the agricultural situation later proved to be such as to make the resumption of these payments essential. Moreover, it will be noted that the total sum budgeted for defense was $1,800,000,000. Although in January, 1940 this seemed a substantial amount, it was soon apparent that such an estimate would be doubled or tripled in actual appropriations. As a matter of fact, by Oct. 15 Congress had appropriated approximately $10,000,000,000 for defense purposes, exclusive of authorizations of expenditure for another $4,000,000,000 or $5,000,000,000. It was, of course, the emergency defense activities of various kinds which so completely changed the financial picture. A comparison of the following list of appropriations, with the budget estimates, will show that in other categories the appropriations follow fairly closely the original budget requests.

APPROPRIATIONS

(As of Oct. 15)
(figures only to hundred thousands)
Fiscal 1941 and 1940 def.

Indep. Offices	$1,120,200,000	April 18
Treas. P. Of.	1,032,800,000	March 25
Agriculture	918,600,000	June 25
St. Com. Just.	107,100,000	May 14
War (civil)	222,700,000	June 24
Interior	135,400,000	June 18
Legis.	23,700,000	June 18
Labor Fed. Sec.	1,023,300,000	June 26
D. C.	48,800,000	June 12
Civil—Total	$4,632,600,000	
Navy	$1,308,200,000	June 11
Military	1,499,300,000	June 13
1st Sup. Nat. Def.	1,479,800,000	June 26
2nd Sup. Nat. Def.	2,497,000,000	September 9
3rd Sup. Nat. Def.	1,324,200,000	October 8
TVA Nat. Def.	25,000,000	July 31
Military Post Const.	338,300,000	September 24
Nat. Defense Housing	75,000,000	October 15
Nat. Def. Total	$8,546,800,000	
Relief	$1,157,700,000 (8 month discretionary)	June 26
	$14,337,100,000	
Emergency Sup.	$252,300,000	February 12
Urgent Def.	57,500,000	February 12
1st Def.	92,000,000	April 6
2nd Def.	85,900,000	June 27
1st Sup. Civil Functions	228,100,000[1]	October 9
Marine Insurance	40,000,000	July 18
Subtotal *exclusive* of contract authorizations for about $4 billion	$15,092,800,000	
Perm. annual approp.	$3,974,000,000	
Grand total excluding authorizations	$19,066,900,000[2]	

[1] Much of this was actually a defense appropriation, including such items as $40 million for landing fields, $10 million for emergency coast guard construction of vessels and shore facilities, $60 million for various kinds of "education and training" of defense workers, ranging from college engineering to mechanical training in vocational schools.

[2] This figure of $19 billion refers to direct appropriations. Contract authorizations add another $4 billion. It should be noted, however, that "direct appropriations" are not synonymous with expenditures. By Oct. 15, Congress had appropriated over $10 billion for defense but probably had not spent over $2 billion.

REVENUE[3]

Congress passed two Revenue Acts in 1940, one late in June, the second on Oct. 1. Although Mr. Roosevelt had in his budget message asked for only $1,800,000,000 for defense, it soon became apparent that such a sum was totally inadequate. Even in January, the gross public debt was $42,000,000,000, within $3,000,000,000 of the authorized maximum, and the Federal balance sheet for the calendar year of 1939 showed a net deficit of $2,000,000,000. Under such circumstances and with an enormously expanded defense program accepted as inevitable,

[3] Considerable assistance in the preparation of this section was derived from the article on "The Two Revenue Acts of 1940" by R. G. and G. C. Blakey, in *The American Economic Review*, December, 1940, pp. 724–735.

the credit side of the Federal ledger obviously needed bolstering. The speed with which the Defense Tax Bill was enacted in June may perhaps have been due to the expectation of a July adjournment, but the vote records show the unanimity with which congressmen agreed that basic changes in the tax structure were essential. Within two weeks after introduction the bill passed the House by a 396 to 6 vote; the Senate concurred, 45 to 21.

This first Revenue Act attacked the financial problem in several ways. (1) It authorized the extension of the debt limit from $45,000,000,000 to $49,000,000,000. (2) It considerably broadened the base of the income tax by reducing exemptions for single persons from $1,000 to $800 and for heads of families from $2,500 to $2,000. It has been estimated that this change will add 2,000,000 new taxpayers and increase the revenue by about $75,000,000. (3) Surtax rates were raised on individual net surtax incomes ranging between $6,000 and $100,000. Additional returns from this change have been estimated at approximately $175,000,000. (4) Certain alterations in corporation income taxes were made which increased the rate in all brackets and raised the top rate, applicable to net income in excess of $25,000, from 18 to 19 per cent. In addition, the law governing the filing of returns was "tightened up" in order to eliminate existing loopholes. Filing is now mandatory for those whose gross income is within the taxable brackets. Formerly returns were required only from those whose "adjusted" income was within the taxable range.

All the provisions noted above are permanent in character. In addition, a temporary defense tax, effective during the next five years, was levied. This defense tax amounts to 10 per cent of the new basic individual and corporation income taxes, excess profits tax, capital stock tax, and estate and gift taxes. It also increases the excise tax rate on alcoholic beverages, cigarettes, radios, refrigerators, and various other articles, and lowers the admissions tax exemption from 41 cents to 21 cents. Expiring excises were extended to June 30, 1945. The additional revenue from this temporary defense tax is estimated at about $680,000,000.

The Second Revenue Act, signed by the President on Oct. 8, represented an attempt to solve two major problems connected with the defense program. In the first place, there was widespread desire in and out of Congress to prevent war profiteering. Senators Connally and LaFollette had proposed amendments to the first Revenue Act which were designed to curb excess profits from war production, but these had not survived the conference committee. The committee did, however, recommend the subsequent enactment of a steeply graduated excess profits tax, and the President urgently requested passage of such a measure. In the second place, business and industry were reluctant to proceed with government defense contracts under existing profit limitations and amortization provisions. For instance, 1940 amendments to the Vinson-Trammell Act had reduced the legal profits on Army, Navy, and air equipment contracts to 8 per cent.

The second Revenue Act in the form finally approved actually both tightened up and liberalized previous legislation. Title I of the act deals with income taxes on corporations whose net income is over $25,000, and its provisions bring the tax on such corporations to 24 per cent, including the special defense tax approved in the first Revenue Act. Title II provides for an excess profits tax on all except specifically exempt corporations. Although the rates are high, ranging from 25 to 50 per cent, the tax is on "adjusted" excess profits net income. There is a flat exemption of $5,000, and computation on additional profits may be made according to either of two criteria at the option of the taxpaying corporation. (1) Excess profits may be considered as profits in excess of 95 per cent of the average earnings for the period 1936-1939. Only one deficit year, however, may be counted as zero. (2) Excess profits may be considered as those exceeding 8 per cent of the invested capital, including 50 per cent of borrowed capital. In spite of this optional provision and certain special relief provisions, almost all corporations, especially those with net earnings over $25,000, will be paying higher income taxes.

However, the act provides that while this excess profits tax is in operation, the profits limitation sections of the Vinson-Trammell Act and the Merchant Marine Act are suspended, and the amortization provisions are considered fairly liberal. The latter permit 60-month amortization, out of tax-free earnings, of the total cost of any properly certified "emergency defense facility."

The act contains three other sections dealing with technical amendments to the income tax law, life insurance for persons in active service, crediting of military service toward annuity requirements of the Railroad Retirement Acts, and relaxation of certain unemployment compensation tax provisions in specified cases.

AGRICULTURE

Financing.—In final form the agricultural appropriation act included $212,000,000 for parity payments to farmers. Since this action was accompanied by reductions in allotments to several other programs, including Farm Tenant activities, Farm Credit Administration, and various aspects of the AAA, it did not raise the total appropriation above the budget estimate.

The Relief Appropriation Bill provided $59,000,000 for rural rehabilitation assistance, and authorized the RFC to make $125,000,000 available for rural rehabilitation loans.

Probably the most important agricultural legislation of the session was the expansion of the Commodity Credit Corporation. Authorized obligations were formerly limited to $900,000,000. This figure was raised to $1,400,000,000. The fund is used to stabilize prices and markets for agricultural products. Under the present international conditions the Corporation is also engaged in building up domestic reserves of strategic materials by barter of American agricultural surpluses.

The Food Stamp Plan, with its $85,000,000 appropriation is actually not only a relief measure but also one designed to expedite the disposal of surplus commodities. It will be more fully discussed in the section on relief.

Bankruptcy.—The Frazier-Lemke Farm Mortgage section of the Bankruptcy Act, which permits insolvent farmers to file petitions of bankruptcy, was extended to March 4, 1944. A few technical amendments were also made.

Reclamation.—The time limit for cooperation between the Bureau of Reclamation and the Farm Security Administration in developing farm units on public lands under Federal reclamation projects was extended to June 30, 1941.

The Sugar Act.—The Sugar Act of 1937, due to expire on Dec. 31, 1940, was extended for a year. A bill to increase the domestic apportionment quotas under the act was passed by the Senate, but the President opposed it as in conflict with the Trade Agreement program, the "Good Neighbor" policy, and the interests of American consumers and taxpayers.

Tariffs.—The President was granted power to impose import fees up to 50 per cent *ad valorem* on articles the importation of which would adversely affect the farm program.

APPOINTMENTS

Several of the 13,000 nominations and confirmations in 1940 were of major importance. A new member was appointed to the Supreme Court, and, of the ten executive departments, six passed under new leadership in the course of the year. The following list contains only the most outstanding of the appointments: Frank Murphy, Associate Justice of the Supreme Court; Robert Jackson, Attorney General; Frank Knox, Secretary of the Navy; Henry L. Stimson, Secretary of War; Jesse Jones, Secretary of Commerce; Frank Walker, Postmaster General; Claude Wickard, Secretary of Agriculture; Francis Biddle, Solicitor General; Philip Fleming, Administrator of the Wages and Hours Division of the Department of Labor; Donald Connolly, Administrator of Civil Aeronautics; Lindsay C. Warren, Comptroller General; and Clarence Dykstra, Director of Selective Service.

In view of the enormous importance of the Defense Commission, technically the advisory commission to the Council of National Defense, it seems justifiable to list its membership here, although the appointments were solely at presidential discretion and not subject to senatorial confirmation: William Knudsen, Commissioner of Industrial Production; Edward R. Stettinius, Jr., Commissioner of Industrial Materials; Sidney Hillman, Commissioner of Employment; Chester C. Davis, Commissioner of Farm Products; Ralph Budd, Commissioner of Transportation; Leon Henderson, Commissioner of Price Stabilization; Harriet Elliott, Commissioner of Consumer Protection. As the result of the recent reorganization designed to expedite defense production, Mr. Knudsen and Mr. Hillman form with Secretaries Knox and Stimson a special Office for Production Management, which is responsible for production, purchasing, and priorities. Within these fields it takes precedence over the larger commission.

CIVIL SERVICE

The President, by an executive order effective Feb. 1, 1939, transferred to the classified service all the exempt government positions over which he had this power. Even after the action had been taken, however, approximately 300,000 Federal positions remained unclassified, and the Administration has consistently attempted to reduce to a minimum the number of potentially "political" appointments. After a lengthy legislative battle, the Ramspeck Civil Service bill secured the approval of both houses during the 1940 session. The core of the controversy was the "blanketing in" on the basis of merely qualifying, as opposed to competitive examinations of about 150,000 present members of emergency staffs. Still exempted from the Federal civil service system are: (1) positions filled by Presidential appointment with Senate confirmation, (2) assistant district attorneys, (3) the administrative staff of WPA, and (4) all TVA positions. The last agency has an effective merit system of its own. These groups include approximately 50,000 employees.

There seems to be no intention of bringing professional and scientific workers into the classified service at least for the present. Probably the whole process of transfer from unclassified to classified status will be made gradually in order to minimize the administrative difficulties of such a large-scale procedure.

The Ramspeck bill also gave the President power to extend Federal classification legislation to the field services. For years such legislation has applied only to Washington positions, although some departments have voluntarily followed it in the field. To prevent any undue hardships, the President is authorized to allow 25 per cent increases in salaries for hazardous or isolated positions. The bill also increases the salaries of commissioners to the customary Federal $10,000.

Incumbents of positions to be classified may obtain civil service status if the department head recommends it and if they pass non-competitive examinations.

The bill also provides for the establishment in each department of boards of review whose junction it will be to hear appeals on, and if necessary to alter, efficiency ratings of employees. These boards will be composed of three members: a representative of the Civil Service Commission, who will act as chairman; a representative of the department head; and a representative of the employees of the department.

DEFENSE—THE ARMY

Unquestionably, "defense" was the grand motif of 1940 legislation. Not only was $10,000,000,000 appropriated for this purpose and dozens of acts passed dealing exclusively with problems relating to defense, but as one goes over the sheaf of public laws it seems that almost every law contains at least one clause connected with this subject. Only those of more general interest will be mentioned in this section.

The "Selective Training and Service Act," popularly called the Conscription Act, made mandatory the registration of all men between the ages of 21 and 36 and specified one year of military training for all within this age group who are not, for one reason or other, exempt. The law, however, limits to 900,000 the number of men who may be in training at one time. Legally exempt are all who have served in the regular army; all who have had in the past one year of active National Guard Service or are at the time of registration in active Guard Service; reserve officers; and ministers. College students will be permitted to finish out the academic year even if their order numbers are called up sooner. Conscientious objectors will not be subject to combatant training but may be assigned either to some noncombatant service or to some "essential" civilian occupation of national importance. The classification of registrants was delegated to local civilian boards, and in actual practice three major groups have been placed in the "deferred" class: men working in essential industries or activities; men with dependents; men in various legally exempt classes.

Land service was restricted to the Western Hemisphere and to United States possessions or territories, including the Philippines.

Obviously the sudden removal of a man from a position or profession to serve for the period of a year at a base pay rate of $30 a month might have serious economic effects on his life. Congress made a definite effort to minimize these difficulties. In the first place an attempt was made to safeguard the jobs of the conscripts. Federal government employees were guaranteed their old, or comparable, positions when they return from service. Private employers who refuse to reinstate returning employees may, upon petition, be subjected to court review of their action. It remains to be seen how effective such a provision will be. The act admits that the employer's circumstances may so have changed as to make reinstatement "impossible or unreasonable," and equitable decisions may prove very difficult.

In the second place, the act makes applicable to all conscripts the Soldiers and Sailors Civil Relief Act of 1918. That act was almost immediately amended and many new provisions to ease the civil liabilities of those in service went into effect. For instance, immediate eviction of families of conscripts for nonpayment of rent is forbidden, as are, except by court order, foreclosure on mortgages and repossession of articles being purchased on time payment plans. The courts are empowered to order a stay of action or to work out some equitable agreement. They may, for example, rule that the contract be terminated and the seller regain the property by repayment of the amount already paid in. Enforced sales of property which is tax delinquent because of the owner's military service are also forbidden except upon court order. Provisions are made whereby premium payments on insurance policies not exceeding $5,000 may be deferred during the period of service and for one year thereafter without lapse of the policy. The government guarantees the payment of premiums, plus interest, for the two-year period and secures a lien on the policy. In all cases, the "relief" is contingent upon the absence of any income, other than the interrupted salary of the conscript, which could be used to meet obligations.

In addition to these ameliorative provisions, the Civil Service Retirement Act and other retirement acts were amended to include in the period of total service for the computation of benefits time spent in military, naval, or marine service.

Congress specified the acquisition of equipment for an army of 1,200,000 men and, in addition, authorized the securing of reserve equipment for another 800,000 men.

The President was authorized to call out the National Guard for active service anywhere in the Western Hemisphere or in any United States possession. He was also empowered to call into active duty any reserve or retired army officer.

The army promotion procedure was revised and regularized. It was decreed that army enlistments "in time of war or other emergency" shall be "for the duration of the emergency plus six months."

THE NAVY

In 1938 a huge naval expansion plan, which increased American naval power far beyond the previous treaty limits, was approved by Congress. As a result of this action the authorized composition of the Navy when the 1940 Congress met was as follows:

Capital ships	630,000 tons (with a contingent authorization of an additional 30,000 tons)
Aircraft carriers	175,000 tons
Cruisers	412,524 tons
Destroyers	228,000 tons
Submarines	81,956 tons

In addition, considerable increase in the number of auxiliary vessels—tenders, repair ships, mine sweepers, mine layers, and tugs—had been approved.

In June of 1940 Congress approved the increase of underage vessel strength by another 167,000 tons, and within three months had voted a further augmentation by 1,325,000 tons. A new schedule of obsolescence was defined at the same time. "Underage" vessels are battleships less than 26 years old, aircraft carriers and cruisers less than 20 years old, other combatant surface craft less than 16 years old, and submarines less than 13 years old. As a result of this recent legislation a navy of definitely "two-ocean" strength has been authorized. The present authorized composition is as follows:

Capital ships	1,045,000 tons
Aircraft carriers	454,500 tons
Cruisers	899,024 tons
Destroyers	478,000 tons
Submarines	172,956 tons

Since 1938 the tonnage in each of these classes except capital ships has been more than doubled. The present quotas for each class may be varied 30 per cent upward or downward on condition only that the total authorized naval increase is not exceeded. In addition, the auxiliary vessel strength may be increased by 100,000 tons, and Congress authorized the expenditure of $50,000,000 on patrol, escort, and miscellaneous craft.

Certain reorganizations in the Coast Guard, designed to increase the efficiency of that service, were approved as were several acts providing reorganizations within the Department of the Navy and within the Naval Service itself. For instance, the Bureau of Construction and Repair and the Bureau of Engineering were consolidated into one Bureau of Ships, the chief and assistant chief of which are to be selected from naval officers on the active list especially qualified in naval engineering and naval architecture. Congress approved the appointment, by the President with Senate approval, of a civilian Under Secretary of the Navy who would serve for the duration of this, or any other, national emergency. Such a temporary Under Secretary would outrank the Assistant Secretary. Certain changes were made in previous naval promotion provisions.

By various acts the President was empowered to call up for active duty any reserve or retired naval officer and any retired Coast Guard officer.

Considerable expansion of existing Caribbean and Pacific naval bases, especially those at Guantanamo, Cuba and Pearl Harbor, Hawaii, were approved fairly early in the session. The establishment of a base at Guam, long urged by the President, finally secured Congressional sanction. With the destroyer-naval base exchange, an enormously expanded Caribbean naval base program became essential. Initially, however, the funds for this purpose were allocated by the President from certain national defense funds left to his discretion.

THE AIR FORCE

By various acts the authorized air strength was increased to 35,000 "useful" planes, of which 15,000 will be for the naval branch. It is interesting to remember that in 1938 the authorized naval air strength was considerably increased to bring the total to 3,000 planes. Extensive civil and military pilot training programs were approved. In order to facilitate procurement of aircraft the Secretaries of War and Navy were authorized, until June 30, 1941, to award contracts for airplanes and their equipment to the three lowest bidders if such action is essential to expedition, and were directed to consider time and rate of delivery and reasonable plant capacity as well as quality and price in determining the contract awards.

SUPPLEMENTARY PERSONNEL

Over $60,000,000 was appropriated for the "education and training of defense workers." The type of training to be thus subsidized ranges from specialized vocational high school work to university courses in engineering. It was noted above that the Selective Service Act provides for the assignment of conscientious objectors to noncombatant service or to "essential" civilian occupation. The Relief Appropriation bill authorizes the training of CCC enrollees in noncombatant activities essential to military and naval prosecution of the national defense.

MATERIEL

The RFC was authorized, "in order to aid the Government of the United States in its national defense program," to make loans to, or with presidential approval to purchase the capital stock of, any corporation where such action would facilitate the production or acquisition of strategic materials or would, by making possible plant construction, plant expansion, purchase of equipment, or adequate working capital in essential industries, conduce to the national defense.

Moreover, the RFC is empowered, when such action is judged necessary, to build, buy, or lease plants for the manufacture of arms, ammunition, equipment, machinery, or any material essential to the national defense. The method of operation is at presidential discretion: the Government may either lease these plants to private companies or may undertake to manage them directly.

The Merchant Marine Act was amended to permit ship owners to set up a reserve fund, exempt from Federal taxes, for construction of new ships.

The President was empowered to requisition tools, machinery, and equipment, intended for export but become legally unexportable, which he deems essential to the national defense, and he was also empowered to forbid the export of military materials or equipment when he considers such action conducive to the public interest and safety.

The Selective Service Act contains a section authorizing the executive branch of the government to take over, and operate on a lease, factories whose owners prove uncooperative in filling government defense orders.

The RFC was authorized to make loans for the purpose of developing or expanding sources of strategic minerals.

HOME GUARD

The "Home Guard Act" authorizes the states to organize military units outside of the National Guard which, as such, will not be subject to Federal call. Individual members of such units, however, remain within the scope of general conscription regulations. The home guards are intended primarily to take over the intermittent policing and security duties of the National Guard while the latter is on active duty for the Federal Government.

THE ENEMY WITHIN

As in all times of emergency, numberless pieces of legislation were passed which aimed to control spying, sabotage, and "un-American" activities in general whether by aliens or by citizens.

The 1918 act providing punishment for sabotage of material, utilities, or premises connected with defense was expanded to include all American possessions and, by means of more careful definitions, was otherwise "tightened up." Penalties for espionage or interference "with foreign relations, foreign commerce, or neutrality" were increased. Aliens admitted as officials of foreign governments, who do not maintain that status, are made practically subject to deportation with the approval of the Secretary of State. The Relief Appropriation Act prohibits employment of aliens, Communists, or Bund members on work relief projects. Stringent regulations concerning employment by companies working on defense contracts of aliens in technical or confidential positions were written into several acts.

The most publicized provisions of the Alien Registration Act, namely, the compulsory registration and fingerprinting of all aliens, would in themselves facilitate espionage control. In addition, the act makes it a criminal offense to advocate military insubordination, to interfere with the "discipline, loyalty, or morale" of the armed forces, or to advocate forceful overthrow of any governmental unit in the United States or its possessions. Existing alien entry provisions and deportation provisions were so amended as to facilitate vigorous anti-spy measures.

Provisions of still another act require registration of all organizations engaging in military or political activity which are controlled by, affiliated with, or receiving any money from, foreign governments. Such organizations are required to submit full data as to their finances, aims, and activities, as well as complete lists of regular members, contributors, associates, and staff workers. It also seems to have been the intent of the act to throw the burden of proof that they are not connected with a foreign power on suspect organizations which fail to register.

It should be noted, however, that in certain cases alien legislation has been somewhat liberalized. The repatriation of women who lost citizenship through marriage to aliens and the naturalization of foreigners whose childhood was spent in this country were facilitated. Large numbers of aliens who entered the country illegally but who are now, for international reasons, non-deportable have registered under the Alien Registration Act. Treatment of these is on the whole very liberal and large groups of them are being permitted to apply for citizenship.

MISCELLANEOUS DEFENSE MEASURES

In cases of WPA defense projects, the percentage limitations on non-labor expenditures, the 25 per cent sponsor contribution requirement, the limitation to $100,000 of Federal funds spent on any one building, and certain of the maximum working hour provisions were relaxed. Moreover it was specifically stated in the Relief Appropriation Act that $25,000,000 of the WPA allotment could be used to "supplement the amounts so authorized for other than labor costs" in cases of approved defense projects.

The President was given emergency powers to "investigate, regulate, or prohibit" transactions in foreign exchange, export, hoarding, melting, etc. of coin or bullion, and transfer, withdrawal, or exportation of any evidences of indebtedness or ownership involving foreign nations.

Through various appropriation acts the President was provided with a continuing "emergency fund" of something over $100,000,000 which might be used at his discretion to facilitate various aspects of defense.

The Federal Works Administrator was authorized to spend $150,000,000 in acquiring land, and in renting or constructing housing facilities for persons engaged in national defense activities where the lack of such housing would impede the national defense program. In another bill, one half of this amount was directly appropriated.

The law permitting, for a period of two years, the Commission of Patents to prevent, in the interest of public safety or defense, the publication or disclosure of a patent is obviously a part of the whole emergency program. The Commissioner is also empowered to withhold patents when in his opinion the granting of them would adversely affect defense activities.

Innumerable specific acts authorized the extension of existing, or acquisition of new, sites for various defense purposes.

A "defense" rivers and harbor improvement program was authorized late in the session, taking the place of a purely "civil" one which received Congressional approval early in the year but was vetoed by the President.

All civilian nautical schools were brought under supervision of the Maritime Commission.

Congress approved the governmental issuance of marine and war risk insurance in order to supply to waterborne commerce insurance which, because of war conditions, it might be impossible to secure from private companies on reasonable terms. Both publicly owned and privately owned vessels, their cargoes, their moneys, and the personal possessions of their officers and crews may be insured. Moreover, the Maritime Commission is also empowered to reinsure against additional war risks any approved insurance companies which have issued insurance on such vessels or life and accident insurance to officers or crew. To establish the marine and war risk insurance fund, $40,000,000 was appropriated.

FEDERAL-STATE RELATIONS

Criminal Jurisdiction. — Areas within states over which the Federal Government has jurisdiction have often complicated the problem of state law enforcement. A law was passed in 1940 which provided that acts committed within such areas which, while not Federal offenses, are offenses against state laws in effect on Feb. 1, 1940 shall be deemed criminal and punishable according to the state code. Similar criminal jurisdiction over Indians on Indian reservations was specifically granted to Kansas.

Taxation.—States were granted permission to levy sales, use, and income taxes on transactions in national parks and reservations or other Federal areas. Like the criminal jurisdiction law just noted, this was a long needed but long delayed ironing out of a wrinkle in our Federal system.

Compacts.—Congress consented to a compact, involving Montana, North Dakota, and Wyoming, concerning division of the waters of the Yellowstone River, and to one among Maryland, West Virginia, Virginia, Pennsylvania, and the District of Columbia for the purpose of creating a Potomac Valley Conservancy District and establishing an Interstate Commission on the Potomac River Basin. A compact designed to "control and reduce" pollution of the streams of the Ohio River drainage basin was also approved. New York, Illinois, Kentucky, and Indiana have already signed this compact. Ohio, Pennsylvania, West Virginia, and Virginia are the other potential signatories. Finally, a general authorization of interstate compacts among the 14 states interested in the Atlantic fisheries was enacted.

Commerce.—Considerable opposition to the sale of convict-made goods has long been voiced by labor groups within several states. Because of the constitutional guarantee of unrestricted interstate commerce, even those states which deemed restrictive measures desirable were until recently precluded from taking any very effective measures in this field. A few years ago Congress specifically exempted from the Constitutional protection of interstate commerce convict-made goods which became articles of interstate commerce, and thus permitted state exclusion of such goods. A further step was taken in 1940 when interstate shipment of convict-made goods was specifically prohibited. To those who are interested in the reformatory and rehabilitating effects of our penal system, it does not seem desirable to eliminate entirely a prisoner's incentive to learn productive trades or his opportunity to turn his socially desirable skills into profitable use. The present act does to a limited extent retain these advantages of prison industries by exempting from its prohibition articles manufactured in Federal penal institutions for use by the Federal Government in any of its agencies and articles manufactured in state institutions for use by other states or their political subdivisions.

FOREIGN RELATIONS

Trade Treaties.—Although such widely publicized "foreign relation" activities as the Japanese embargo, the loans to China, and the destroyer-naval base exchange were solely within the executive sphere, Congress, too, during the past session has been making history by its international policies.

Probably one of the most significant single acts was the extension, for another three years, of the President's power to conclude reciprocal trade treaties with foreign countries. In peace time, a most effective device for improving American business and commerce and for working toward international amity, in times of emergency, this power may prove a potent defense weapon. Extension of the power incidentally marked a salutary Congressional recognition of the fact that the Executive must have leeway in foreign affairs.

Relief.—Congress provided in the Relief Appropriation Act $50,000,000 to be distributed through the Red Cross for the relief of European war sufferers and, in separate acts, amended the neutrality law to permit American ships to enter forbidden zones to evacuate children or to carry medical supplies, food, and clothing. However, permission of blockading countries must still be obtained before it is legal to enter a blockade zone.

Finland.—The first expansion of the revolving credit fund of the Export-Import Bank, from $100,000,000 to $200,000,000, for the purpose of loans to foreign countries was intended to facilitate aid to Finland. The act, which specifically excluded loans to governments in default on previous loans, was, in fact, referred to as the "Finnish Loan Bill." Later in the session Congress sanctioned the postponement of 1940 payments on the Finnish debt.

England.—The act which suspended the restriction on the use of laid-up vessels of the Maritime Commission fleet and permitted the sale of these vessels under advertised competitive bids obviously had definite relevance to our foreign policy. The same was true of the act which authorized sale of surplus or obsolete war materiel to foreign governments through the device of trading it in to the manufacturers for resale.

WESTERN HEMISPHERE TRADE

In addition to the Trade Treaty extension, which greatly facilitated favorable relations with South America, there were other acts which were even more specifically designed to bolster Pan-Americanism, and, of course, hemisphere defense.

In September the credit fund of the Export-Import Bank was again increased, this time from $200,000,000 to $700,000,000. The act authorized the Bank to lend amounts up to $500,000,000 to nations in the Western Hemisphere. The expressed purpose was "to assist in the development of the resources, the stabilization of the economies, and the orderly marketing of the products of the countries of the Western Hemisphere." It would be unduly cynical to minimize the "good neighbor" intent of this act, but it is obvious that the defense motif also played its part.

More specifically military was the act which authorized the Secretaries of War and Navy to assist the Central and South American republics in building up their military and naval establishments. Congress sanctioned the manufacture on behalf of, and sale to, such republics of materiel for coast defense, anti-aircraft facilities, warships, and all related equipment and ammunition. A clause specifically forbade the subsequent sale or transfer of any of the equipment, plans, specifications, or information to any government other than an American republic.

Although companion resolutions were passed in House and Senate which recorded as Congressional policy the non-recognition of the transfer of any land in the Western Hemisphere from one non-American power to another, each house resolutely upheld its own version of the Monroe Doctrine, and no legislation on the subject was enacted. As a matter of fact, any such phraseology fails to cover the contingency which European events prove to be most likely, namely, the alien control of domestic "puppet" governments.

HIGHWAYS

For Federal aid to the states in the national highway program Congress authorized the expenditure of $100,000,000 in 1941-42 and of the same amount in 1942-43. For each of those fiscal years $17,500,000 was authorized for use in developing secondary or "feeder" roads; $20,000,000 for various safety devices such as elimination of highway-railroad crossings (this money, incidentally, need not be matched by the states); $10,000,000 for forest highways and trails; $4,000,000 for National Park Service roads; $7,500,000 for Federal parkways. A special provision was inserted which permitted, in certain cases where the state revenues properly allocated to state highway departments do not permit the matching of Federal funds, the remission of the matching requirement and the allocation of the Federal grant within such a state solely to highway projects deemed advisable from the standpoint of national defense.

INVESTIGATIONS

Labor.—A special Senate committee to investigate unemployment and relief was continued in existence, and the House approved a study of interstate migration of workers. The Bureau of Labor Statistics was directed to collect data on the whole problem of convict-made goods.

Business and Industry.—The Senate Interstate Commerce Committee was directed to continue investigations of railroad financing and of the telegraph industry. The House authorized an investigation of Alaskan and domestic fisheries, and the Senate set up a special committee to study the problems of small business. The Bureau of Labor Statistics was directed "to make continuing studies of productivity and labor costs in the manufacturing, mining, transportation, distribution and other industries."

Resources.—The Joint Congressional Committee to Investigate the Adequacy and Use of Phosphate Resources was continued until January, 1941.

Defense.—The Senate directed its Interstate Commerce Committee to conduct a study of the factors in interstate and foreign commerce which impede defense.

Politics.—Investigation of campaign expenditures prior to the 1940 election was specified by a House resolution.

Un-American Activities.—The House authorized the continuance of the Dies Committee to Investigate Un-American Activities. The reports of this Committee have achieved nationwide notoriety and, especially in view of the present world situation, have been considered ill-advised by many persons. It is no secret that the Administration was not pleased at the prospect of the Committee's continued existence, and members of the executive branch of the Government have openly charged that a legislative activity of this particular type infringes on the executive function, interferes with the essential work of the Federal Secret services, and impedes law enforcement agencies in their preparatory and follow-up work.

MUNICIPAL BANKRUPTCY

The Municipal Bankruptcy Act of 1937, scheduled to expire on June 30, 1940, was extended for another two years. Counties were included within its provisions and several technical changes made. This act permits the working out of debt adjustment plans by the cities or counties and their creditors. Plans approved by the majority of creditors and sanctioned by the Federal courts become legally binding on all creditors.

POLITICAL ACTIVITIES

Amendments to the 1939 Hatch Act, more formally entitled the Anti-Pernicious Political Activities Act, were finally enacted after considerable debate. The most important of the provisions were: (1) limitation of individual campaign contributions to $5,000; (2) limitation of total campaign expenditures by each organization to $3,000,000; (3) extension of the prohibition of political activities to all employees whose income is derived in whole or part from Federal money. The act is unfortunately so phrased as to leave many important aspects of the problem inadequately defined. For instance, there has been considerable controversy as to whether "organization" is synonymous with "party". The Republicans during the 1940 campaign maintained that the act itself does not justify such an interpretation and openly announced that each of the four Republican campaign "organizations" was entitled to spend, and did spend, $3,000,000. Moreover, there has been some question as to the precise application of the third provision listed above. Obviously many state and local officials who are connected with activities directly subsidized by the Federal Government are within the scope of the new act. But it is not quite clear whether the act likewise applies to those who are working for an agency which is receiving or has received Federal subsidies for some purposes but not for their specific activities.

REAPPORTIONMENT

The Census and Reapportionment Bill of 1940 did not change the previous law which limited the number of representatives to 435. Therefore, the 1940 census will have political results of some interest. It has been estimated that the Democratic strength in the House of Representatives will probably be increased and that the Democratic strength in presidential elections almost certainly will be increased. Reapportionment on the basis of the new census would give one additional representative each to Arizona, Florida, Michigan, New Mexico, North Carolina, Oregon, and Tennessee, and three additional representatives to California. Of these, Arizona, Florida, New Mexico, North Carolina, and Tennessee are "traditionally" Democratic in presidential elections, and of the 27 representatives from those states sitting in the 76th Congress, 25 are Democrats.

California, though newly Democratic in presidential elections, has been strongly so since 1928, and 12 of her 20 present representatives are of that party. On the other hand, of the ten states which will each lose one representative and consequently one electoral vote, only Arkansas and Oklahoma are predominantly Democratic; Kansas, Iowa, Indiana, and Nebraska are strongly Republican in presidential elections, and more than two thirds of their present representatives are Republican; Illinois, Massachusetts, Ohio, and Pennsylvania are "uncertain" in presidential elections, and their present representation is just about evenly split between the two parties. There seems a straight gain of six Democratic electoral votes, and a loss of two Republican ones.

If the four "uncertain" states which lost representatives were to be Republican in an election, that party's electoral strength would be less than at present; if they were Democratic, the loss of the four votes now held by them would not cancel Democratic gains elsewhere.

Although the Reapportionment Act provides that the present apportionment will remain in force if a new law is not passed within 60 days after the formal transmission of the census report at the first regular session of the 77th Congress, there seems little possibility of such an event.

REGULATION OF BUSINESS

Agricultural Market Transactions.—In several fields the regulatory functions of the Federal Government were expanded. The original power of the Commodity Exchange Administration to supervise market transactions in wheat, corn, cotton, oats, rye, barley, flaxseed, grain sorghums, mill feeds, rice, butter, eggs, potatoes, and wooltops has been extended to include transactions in fats, oils, cottonseed, cottonseed meal, and peanuts.

Investment Companies.—Investment companies have been brought under the regulation of the Securities Exchange Commission. The act sets forth the eight situations growing out of undesirable investment company management and policy which adversely affect "the national public interest and the interest of investors," and aims to mitigate or eliminate these conditions. Provisions to prevent undue concentration of control by pyramiding or other means, to prevent basic changes in investment policy without the consent of security holders, and to check the issuance of ambiguous financial reports are included. In order to insure adequate information to holders and potential purchasers, registration with the SEC is made mandatory and, consequently, compliance with all the relevant provisions covering other security issues and transactions. Various procedures to prevent discriminatory management in the interest of directors, underwriters, or special groups are provided; for instance, regulations dealing with the composition of boards of directors, qualifications of brokers, relations between banks, advisors and officers, etc. Finally, to insure adequate financial responsibility, public offerings are forbidden unless essentially, in one form or another, the issuing company has a net worth of at least $100,000.

Transportation.—After a rather long and stormy Congressional career the Wheeler-Lea Transportation bill became law during 1940. The most important effect of this act is to bring water-bourne shipping under the control of the Interstate Commerce Commission. Companies engaged in water transportation must henceforth file the same general type of reports and be subject to the same contingent regulation as the Commission exercises over rail and motor carriers. This includes supervision over business management, financial accounts, rates, services, and routes.

In addition to this major extension, the act also contains a score of amendments to the previous Interstate Commerce Law. For instance, discriminatory "short haul" rates are prohibited; unapproved mergers or unapproved "pooling or division of traffic" are made illegal.

The act further authorized the investigation, by a special board, of the whole transportation system of the country, with a view to determining the peculiar values and adaptabilities of each type of carrier, the extent and effects of government subsidization, and the general incidence of taxation on the carriers.

Wool Labelling.—The "Truth in Fabrics" Act requires that woolen goods be clearly labelled or marked to show the actual wool content of each article. Both failure to brand merchandise and misbranding were made Federal offenses.

RELIEF

Although not all of the total "Relief" appropriation of $1,157,711,357 was directly allocated to domestic relief, well over $1,000,000,000 was so apportioned. Of this amount $975,650,000 went to WPA with permission to use the funds over an 8-month period if the President considered such a course desirable. Certain of the conditions of the WPA grant caused considerable controversy. For instance, there was some question whether the blanket exclusion of all aliens was not an extreme step. The removal from employment, at least for a 30-day period, of workers who had been continuously employed on WPA for more than 18 months was also a storm center. Generally approved were the stricter provisions designed to eliminate "political" use of work relief.

The Department of Agriculture received $59,000,000 of the relief fund for rural rehabilitation and relief to farmers, and smaller amounts were provided for rural rehabilitation in Puerto Rico and for Indian relief.

One of the most interesting of the developments in relief legislation was the establishment of the Food Stamp Plan. This represents another attempt to solve the basic economic problem of distribution—to work out a practicable technique by which surplus commodities are made available to those in need. Since the receivers of the stamps are largely moneyless and consequently are not potential customers in the ordinary sense, the plan seems to achieve its goal with a minimal dislocation of the existing market. As noted above, $85,000,000 was appropriated for this purpose.

FEDERAL ADMINISTRATIVE AGENCIES

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GOVERNMENT REORGANIZATION PLANS

During 1940, the President of the United States submitted to Congress three plans for the reorganization of the Administrative branch of the National Government. These plans were pursuant to the Reorganization Act of April 3, 1939. Plans I and II were submitted to Congress on April 25 and May 9 of 1939. Plans III, IV, and V were submitted on April 2 and 11 and May 22 of the year 1940. The objective of all five plans is: "1. To reduce expenditures; 2. To increase efficiency; 3. To consolidate agencies according to major purposes; 4. To reduce the number of agencies by consolidating those having similar functions and by abolishing such as may not be necessary; 5. To eliminate overlapping and duplication of effort." Plan No. III was directed primarily to the improvement of intra-departmental adjustment in certain agencies.

DEPARTMENT OF THE TREASURY

The Fiscal Service.—A division named the Fiscal Service was established in the Treasury Department. At the head of it was placed an Assistant Secretary known as the Fiscal Assistant Secretary. To make up this new agency the following functions were consolidated: the office of the Commissioners of Accounts and Deposits, the Division of Bookkeeping and Warrants, the Division of Disbursements, the Division of Deposits, the section of Surety Bonds, the office of the Commissioner of the Public Debt, the Division of Loans and Currency, the Register of the Treasury, the Division of Public Debt Accounts and Audit, the Division of Savings Bonds, the Division of Paper Custody, and the Office of the Treasurer of the United States.

The Fiscal Service is subdivided

into: Officer of the Fiscal Assistant Secretary, Officer of the Treasury of the United States, Bureau of Accounts and Bureau of the Public Debt. The Secretary of the Treasury was given the power to subdivide the agencies named as he deemed necessary. The Division of Bookkeeping and Warrants and its functions were transferred to the Bureau of Accounts. At the head of it was placed a Commissioner of Accounts and Deposits whose title is the Commissioner of Accounts.

Commissioner of the Public Debt.—The office of the Commissioner of the Public Debt incorporated the Division of Loans and Currency, the office of the Register of the Treasury, the Division of Public Dept Accounts and Audit, the Division of Savings Bonds, and the Division of Paper Custody. The head of the new Consolidated agency is to be known as the Commissioner of the Public Debt.

The Fiscal Assistant Secretary is appointed by the Secretary of the Treasury in accordance with civil service laws and receives a salary of $10,000 per year. In case of the absence or disability of the Fiscal Assistant Secretary, the Secretary of the Treasury may designate any other officer of the Treasury Department to act as Fiscal Assistant Secretary.

The office of the Assistant Secretary of the Treasury was abolished and all its functions, rights, powers, and duties were transferred to the Fiscal Assistant Secretary to be exercised by him under the direction of the Secretary of the Treasury.

The Federal Alcohol Administration with all of its offices was abolished and its functions were transferred to the Bureau of Internal Revenue in the Department of the Treasury.

Office of Merchant Ship Movements.—This Agency was established in the Treasury Department to control vessels in territorial waters. The Office is headed by a commander of the Coast Guard.

DEPARTMENT OF THE INTERIOR

The Office of Recorder of the General Land Office was abolished and its functions were transferred to the General Land Office of the Department of Interior.

Fish and Wild Life Service.—The Bureau of Fisheries of the Department of Commerce was consolidated with the Bureau of Biological Survey of the Department of Interior into a new agency known as the Fish and Wild Life Service in the Department of the Interior. The functions of the consolidated agency are administered by a director and two assistant directors appointed by the Secretary of the Interior. The offices of the Commissioner and Deputy Commissioner of Fisheries and the offices of Chief and Associate Chief of the Bureau of Biological Survey were abolished and the functions transferred to the Fish and Wild Life Agency.

Soil Conservation Service Transferred.—By reorganization Plan No. IV, the functions of the Soil Conservation Service in the Department of Agriculture dealing with soil and moisture conservation operations were transferred to the Department of the Interior.

Federal Security Agency.—A number of agencies were transferred from the Department of the Interior to the Federal Security Agency which was established under the reorganization plans of 1939. Saint Elizabeth's Hospital for nervous and mental diseases was transferred to the Security Agency. The annual reports required to be sent to Congress by the superintendent are in the future to be transmitted through the Federal Security Administrator. The report of the Board of Visitors is to be sent to the Security Administrator instead of the Department of the Interior.

Freedmen's Hospital, an institution for the colored, is also transferred from the Department of the Interior to the Federal Security Agency and all administration and supervision is for the future transferred to the Federal Security Administrator.

Howard University.—Except for

the duty of inspection and report by the Office of Education of the Department of Interior, the administration of Howard University for the Colored is transferred to the Federal Security Agency. The annual report is required to be furnished by the president of the university to the Security Administrator.

Columbia Institution for the Deaf.—All functions of the Department of the Interior relating to the administration of the Columbia Institution for the Deaf were transferred to the Federal Security Agency.

Food and Drug Administration.—The name of the Chief of the Food and Drug Administration was changed to that of Commissioner of Food and Drugs and the functions of the Bureau of Food and Drugs Administration were transferred from the Department of Agriculture to the Federal Security Agency except those relating to the Naval Stores Act and those of the Insecticide Act of 1910.

Public Construction—Wage Payments.—The functions of the Secretary of the Interior and of the Secretary of the Treasury under the Act of June 13, 1934, entitled "An Act to effectuate the purpose of certain statutes concerning rates of pay for labor by making it unlawful to prevent anyone from receiving the compensation contracted for thereunder and for other purposes", were transferred to the Secretary of Labor to be administered under his direction in the Department of Labor. The act deals with wage payments on public construction.

DEPARTMENT OF AGRICULTURE

Fertilizer and Research Division was set up in the Bureau of Chemistry and Engineering. The Chief of the Bureau of Plant Industry was designated as personal representative of the Secretary of Agriculture to administer this division.

Administrative Council.—This board or council, consisting of the Assistant to the Secretary, Director of Finance, Director of Personnel, Land Use Coordinator, Director of Research, Director of Extension Work, Director of Information, Director of Marketing, and the Solicitor, was appointed by the Secretary of Agriculture to study departmental reports on activities and expenditures and to suggest administrative improvements and economies.

Farm Credit Administration.—It was announced a year ago by the Secretary of Agriculture that the Farm Credit Administration would not become "an integral part of the Department of Agriculture", but would remain autonomous. While the legal status of the Agency has not changed, the policies of the Farm Credit Administration are being made to conform to those of the Department of Agriculture as though it were a bureau in the Department. This policy was followed by the resignation of the Governor, one Deputy Governor, the General Counsel, and the Land Book Examiner of the Farm Credit Administration. Each was succeeded by an appointee previously connected with the Department of Agriculture.

Surplus Marketing Administration.—The Division of Marketing and Marketing Agreements of the Agricultural Adjustments Administration and the Federal Surplus Commodities Corporation were consolidated into one agency to be known as the Surplus Marketing Administration.

The Farm Security Administration of the Department was extended to June 30, 1941.

DEPARTMENT OF JUSTICE

Immigration and Naturalization Service.—The Reorganization Plan No. V provides for the transfer of the Immigration and Naturalization Service of the Department of Labor to the Department of Justice to be administered under the supervision and direction of the Attorney General. All functions and powers relating to the enforcement of immigration and naturalization laws are committed to the head of the Department of Justice. In the event of any disagreement between the head of any other department or agency as to the interpretation or application of any law relating to immigration, naturalization, or nationality, the decision of the Attorney General shall be final and controlling.

Disbursement Functions of United States Marshals.—As to these functions which would have gone to the Treasury Department but by executive order it is provided that they be transferred to the Department of Justice to be exercised by United States Marshals under the supervision of the Attorney General. The Attorney General, however, must furnish the Secretary of the Treasury, when requested, such information as the Treasury may require with respect to the sums of money received and disbursed by marshals and the procedures followed. Upon request of the Secretary of the Treasury, and with the approval of the Attorney General, the facilities of the Department of Justice may be utilized in the disbursement of public moneys of the United States available for expenditure by any agency of the Government.

Alcohol Administration Cases.—The functions of the Attorney General concerning the approval of compromises made in accordance with the provisions of the Federal Alcohol Administration Act were transferred to the Secretary of the Treasury to be supervised and administered in the Treasury Department. However, exclusive jurisdiction to compromise cases arising under the Federal Alcohol Administration Act, which were at the time of the transfer pending in the courts or which were there after referred to the Department of Justice for action, are to be under the exclusive jurisdiction of the Attorney General and the Department of Justice.

POST OFFICE DEPARTMENT

Postal Revenue Disbursement.—All functions relating to the disbursement of the postal revenues and all other funds under the jurisdiction of the Post Office Department and the Post Master General, and the Board of Trustees of the Postal Savings System which would otherwise have become functions of the Treasury Department on July 1, 1940, were transferred and vested in the Board of Trustees of the Postal Savings System as to postal savings disbursements and the Post Office Department as to other disbursements involved. The Treasury Department may, however, request information as to the amount of money received and disbursed by the Post Office Department and the procedures followed. Upon request of the Secretary of the Treasury and approval of the Postmaster General the facilities of the Post Office Department may be utilized in the disbursement of public money of the United States available for expenditure by any agency of the Government.

Transfer of Interbuilding Messenger Functions.—Except as otherwise prohibited by the Reorganization Act of 1939 the functions of the interbuilding messenger services, including the transportation of mail and the function of transporting mails between the Government Agencies and the city post office, now exercised in the District of Columbia by Agencies of the Government are consolidated in the Post Office Department. This section does not apply to the transportation of money and securities by armored trucks or other special services or messenger service between contiguous buildings. The Director of the Budget may waive the transfer of any motor vehicle where he finds that the retention of such vehicle is essential to the performance of functions not transferred under the act.

DEPARTMENT OF COMMERCE

Civil Aeronautics Board.—The functions of the Civil Aeronautics Authority, the Office of the Administrator of Civil Aeronautics with its functions, and the Air Safety Board were transferred to the Department of Commerce. The officers of the members of the Air Safety Board were abolished. The new consolidated agency is known as the Civil Aeronautics Board. The Administrator of Civil Aeronautics is retained. This office, together with the Civil Aeronautics Board, constitute the Civil Aeronautics Authority in the Department of Commerce. However, the Civil Aeronautics Board is to have the power to make rules and standards, adjudications, and investigations independently of the Secretary of Commerce. The budgeting, accounting, personnel problems, procurement, and related routine management functions of the Civil Aeronautics Board are performed under the supervision and the direction of the Secretary of Commerce.

The Weather Bureau was transferred from the Department of Agriculture to the Department of Commerce. Nevertheless, the Department of Agriculture is authorized to continue to make snow surveys and to conduct researches concerning the relation between weather and crops, long-range weather forecasting, and the relation between the weather and soil erosion.

NAVY DEPARTMENT

State Marine and Nautical Schools.—The functions of the Secretary of the Navy with respect to furnishing, repairing, and maintaining vessels for the use of state marine and nautical schools and the administration of funds for the support of these schools was transferred to the United States Maritime Commission. Jurisdiction over vessels, apparel, charts, books and instruments loaned to state marine or nautical schools was transferred from the Navy Department to the United States Maritime Commission.

A new Bureau of Ships was created in the Navy Department to take over the functions of the Bureau of Construction and Repair and the Bureau of Engineering. The act creating the Bureau of Ships also authorizes the appointment with the advice and consent of the Senate and Undersecretary of the Navy to service during any emergency.

STATE DEPARTMENT

Dominican Customs Receivership.—The functions of the Divisions of Territories and Insular Possessions in the Department of the Interior concerning the Dominican Customs Receivership were transferred to the Department of State to be under the direction and supervision of the Secretary of State.

Commercial Treaties and Agreements.—There was created in the State Department by the Secretary a division of Commercial Treaties and Agreements to have charge of the formulation, negotiation, and administration of all commercial treaties and agreements and to cooperate in the formulation of international commercial policy.

BOARD OF DIRECTORS OF THE CANAL ZONE BIOLOGICAL AREA

This agency was created to supervise the administration of an area to be left in its natural state for scientific observation and investigation. The Board consists of the Secretaries of War, Agriculture, Interior, the Smithsonian Institution, the President of the National Academy of Sciences, and three distinguished biologists appointed by the National Academy of Sciences. The biologists serve for three years without salary, but they will be reimbursed for expenses. A salaried head is appointed by the Board.

COUNCIL OF PERSONNEL ADMINISTRATION

Effective July 1, 1940, the United States Civil Service Commission was directed to establish within the Civil Service Commission a Council of Personnel Administration, to designate as members of it such of the personnel of the Commission as the Commission should decide, and to designate one member as chairman. The directors of personnel of the departments and independent establishments and a representative of the Bureau of the Budget are made *ex officio* members of the Council.

The Council is to advise and assist

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the President and the Commission in the protection and improvement of the merit system and to recommend from time to time needed changes in procedure, rules, or regulations. When directed to do so by the President or the Commission, the Council shall hold hearings and conduct investigations with respect to alleged abuses and proposed changes. The Council must carry on programs of study to coordinate and perfect the executive personnel service in all its branches.

DEFENSE AGENCIES

The Advisory Commission to the Council of National Defense was created May 28, 1940. The Council of National Defense consists of the Secretaries of War, Navy, Interior, Commerce, Agriculture, and Labor, and the statutes permit it to nominate to the President an advisory commission. The members of the Commission receive no salary but are reimbursed for expenses. The Advisory Defense Commission appears to have thirty members to cooperate with thirty designated by the War Department and a similar number from the Navy.

"Super Commission."—On December 20, the President designated a "super commission" composed of Commissioners Knudsen and Hillman and Secretaries Stimson and Knox to coordinate and speed up the national defense program.

Bureau of Statistics of the National Defense Advisory Commission.—This bureau was created by the Commission on June 20, 1940 to provide for the orderly flow of requests from the various commissioners to existing research and statistical agencies, trade associations, and business enterprises.

The National Defense Power Committee was abolished and its work transferred to the National Power Policy Committee.

National Defense Research Committee.—This committee was created by the Council of National Defense to correlate and support scientific research on the devices and mechanisms of warfare, except those falling to the National Advisory Committee for Aeronautics. The Committee consists of the President of the National Academy of Sciences, Commissioner of Patents, an Army officer designated by the Secretary of War, and a Naval officer designated by the Secretary of the Navy. The members are to be without salary but are to be reimbursed for expenses.

The Office of Administrator of Export Control was created July 2, 1940 for the control of exportation of commodities necessary for national defense.

Federal Security Administrator.—On November 28, 1940, the Council of National Defense, with the approval of the President, designated the Federal Security Administrator as coordinator of all health, medical, welfare nutrition, recreation and other related fields of activity affecting the national defense. In the performance of this responsibility, it must, in cooperation with the Advisory Commission to the Council of National Defense, formulate and execute plans designed to assure the provision of adequate services of the above character during the emergency, and for that purpose to coordinate the facilities of existing Federal agencies.

Office of Emergency Management.—This office, created May 25, is under the direction of one of the administrative assistants to the President. Its duties are to assist the President in respect to the clearance of information concerning measures necessitated by the threatened emergency, and to maintain liaison between the President and the Council of National Defense and its Advisory Commission and such other agencies as the President may direct.

Interior Department Defense Resources Committee.—This committee was created by the Secretary of the Interior to coordinate the Department's control over strategic materials, hydro-electric power, coal, oil, and other essentials for national defense. It is composed of the First Assistant Secretary, Director of the Geological

Survey, Director of the Bureau of Mines, Director of the Petroleum Conservation Division, Director of the Grazing Service, Director of the Bureau of Reclamation, Assistant Commissioner of the General Land Office, and Director of Forests.

Office for Coordination of National Defense Purchases.—This office was also created by the Council of National Defense (1) to establish liaison between the Advisory Commission of the Council and the offices of the Government to insure proper coordination of purchases; (2) to determine the most economical and effective methods of purchase of items common to the several agencies; (3) to collect statistics on purchases by the Federal agencies; (4) to coordinate research in procurement specifications and standardization; (5) to determine and keep current combined and immediate material requirements of the various agencies and to estimate future requirements so as to facilitate purchases and to cushion the impact of such orders on the national economy; (6) to review existing legislation and to recommend legislation to make government purchasing more efficient; (7) to make recommendations to the President relative to the priority of orders. The head of the office, the Coordinator of National Defense Purchases, receives no salary but is reimbursed for expenses.

Civil Service Change.—On April 27 an executive order was promulgated amending the order of 1873 to permit officers and employees of the Social Security Board and the Federal Security Agency to hold state, territorial, and municipal offices in accordance with the Civil Service laws and subject to the approval of the Board and the Security Administrator.

OTHER AGENCIES

United States University of Pennsylvania Bicentennial Commission.—This was created by Resolution of Congress to cooperate in celebrating the founding of the University. It is composed of the President and four persons appointed by him, the President of the Senate and four Senators appointed by him, and the Speaker of the House and four Representatives appointed by him. $10,000 was appropriated for expenses.

Auxiliary Commission to the Afro-Mexican Emancipation Exposition Commission.—Created by Congress to have charge of expenditures for the American Negro Exposition held in Chicago July-September, 1940. It was composed of three persons appointed by the President, one to be a Representative and one a Senator. An appropriation of $75,000 was made by Congress for this purpose.

Industry Committee.—Pursuant to the provisions of the Fair Labor Standards, the Administrator of the Wage and Hour Division of the Department of Labor appointed and convened for the drug, medicine, and toilet preparation industry an industry committee composed of 18 members,—six to represent the public, six to represent employees, and six to represent employers.

THE SUPREME COURT AND CONSTITUTIONAL LAW

By Noel T. Dowling

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GENERAL

The year 1940, at the beginning of which Frank Murphy, as the fifth new Justice in three years, took his seat on the Bench, witnessed a further progression by the Court in the direction which it has recently set towards wider ranges of legislative action free from judicial interference.

This progression was illustrated in the fields of nation-state relationships in the Federal system as well as relationships between individuals and government whether state or national. Expansion of national power was established by decision on the merits or procedurally insulated from attack. At the same time leniency was exhibited with respect to state encroachment on interstate commerce, whether by holdings that the Constitution *per se* interposes no obstacle or that Congress, where it had acted, did not intend to exclude the states. The will of Congress, rather than a mandate in the Constitution, is coming more and more to dominate the nation-state relationships. In the control of economic interests private resistance to state power, on the ground either that the state was trying to reach affairs outside its boundaries or was cutting too deep into matters within its domain, proved unavailing. Even in the area of the very highest judicial protection, where liberty of the mind is involved and where governmental interference has almost uniformly been stricken down, judicial sanction was given to a legislative command compliance with which required conduct repugnant to the religious beliefs of the individual.

NAVIGABLE WATERS AND NATIONAL POWER

Is a stream "navigable in law" only when it is navigable in fact, and is authority of the United States over electric power projects in a stream limited to the protection of navigability? These questions, long under debate in connection with the application of the Federal Power Act, finally came to an issue in *United States v. Appalachian Electric Power Co.* (Dec. 16) where with negative answers to both questions proponents of national power won all along the waterfront.

Under the statute, construction of dams in navigable waters is unlawful, except pursuant to a license from the Federal Power Commission granted on conditions within the act; even as to non-navigable streams permission must be secured from the Commission on findings that the interests of interstate or foreign commerce will not be affected. Failing over a period of years to obtain such permission or a license on satisfactory conditions, the Appalachian Company in 1934 began the construction of a dam in New River, which flows through Virginia and West Virginia, and was faced soon thereafter with an injunction suit brought by the United States. The Government contended, and the company denied, that New River was navigable; and the Company further urged that, even if the river were navigable, the conditions which the Commission inserted in the tendered license (*e.g.*, to control the affairs of the company and to take over the project on certain terms at the expiration of the license) were unconstitutional as unrelated to navigation or the protection of navigable capacity. The lower courts found the river not navigable and dismissed the Government's suit; but the Supreme Court reversed, with instructions to enjoin the construction, maintenance, or operation of the project otherwise than under a license substantially in the form previously tendered by the Commission. Mr. Justice Reed delivered the opinion; Mr. Chief Justice Hughes did not participate; Justices Roberts and McReynolds dissented in an opinion by the former on the point of navigability. Forty-one states joined as *amici curiae* in opposition to the asserted powers of the Commission.

Navigability, said the majority, "is, of course, a factual question but to call it a fact can not obscure the diverse elements that enter into the application of the legal tests as to navigability." It is not enough to inquire into navigability under "natural or ordinary" conditions; "availability for navigation" in the "light of the effect of reasonable improvements" must also be taken into account. Hence the issue in the present case, navigability of New River, involved the "feasibility of interstate use after reasonable improvements which might be made." On the basis of an extended inquiry as to what had been, or could be, done to make the river available for commercial use, the majority concluded that it is "navigable water of the United States."

The minority insisted that prior tests of navigability were being greatly relaxed, thus favoring national control, and that the suggested limit of "reasonable" improvements (the majority had said that there "must be a balance between cost and need at a time when the improvement would be useful") could be applied only by Congress, certainly not by the Court. The result would be, the minority concluded, that "every creek in every state of the Union which has enough water, when conserved by dams and locks or channelled by wing dams and sluices, to float a boat drawing two feet of water, may be pronounced navigable because, by the expenditure of some enormous sum, such a project would be possible of execution. In other words, Congress can create navigability by determining to improve a non-navigable stream."

Turning to and sustaining the validity of the license provisions, the majority denied that the authority of the United States over its waters is limited to control of navigation. Its authority, derived from the commerce clause, "is as broad as the needs of commerce," and it includes as well, flood protection, watershed development, recovery of the cost of improvements through utilization of water power. Indeed, the Court goes so far as to say that the development of water power "is from the public's standpoint a *by-product* of the general use of the rivers for commerce" (italics ours), and adds that navigable waters are "subject to national planning and control in the broad regulation of commerce" granted to Congress.

This case, taken in conjunction with the first and second TVA cases (the latter of which was discussed in THE AMERICAN YEAR BOOK, 1939, p. 47), goes far towards the establishment of complete dominion by the National Government, free from judicial interference, over the water power resources of the United States. Technically there has been no specific decision adverse to the states themselves as to their possible proprietary interests in these resources, but the present rejection of the protests of 41 states shows clearly enough which way the current is running.

COAL MINING AND CONGRESSIONAL CONTROL

Believers in Federal regulation as the medicine for the ills of the coal industry rejoiced in the decision of *Sunshine Anthracite Coal Co. v. Adkins* (May 20th), that national fixing of prices for bituminous coal was within the commerce power of Congress. The Bituminous Coal Act of 1937 (successor to the Guffey Coal Act held unconstitutional on its labor provisions in 1936) provides that a tax of 19½ per cent of the sale price (or in some cases of the fair market value) shall be levied upon the sale or other disposal of bituminous coal in interstate commerce, or in intrastate commerce in a manner "directly affecting" interstate commerce. Only coal producers who become members of the code organization are exempted from the tax. But code members must conform in their sales to minimum and maximum prices founded on proposals of district boards and determined by the Bituminous Coal Division of the Department of Interior (formerly the Bituminous Coal Commission). Unlike the Guffey Act, the 1937 act makes no effort to control wages and hours. An Arkansas non-member producer unsuccessfully sought to enjoin collection of the penalizing tax, alleging the unconstitutionality of the act.

After declaring the tax but an adjunct to the exertion of regulatory power, the Court proceeded: "The regulatory provisions are clearly within the power of Congress under the commerce clause of the Constitution. These provisions are applicable only to sales or transactions in, or directly or intimately affecting, interstate commerce. The fixing of prices, the proscription of unfair trade practices, the establishment of marketing rules respecting such sales of bituminous coal constitute regulations within the competence of Congress under the commerce clause. * * * Since this power when it exists is complete in itself, . . . there can be no question but that the provisions of this Act are an exertion of the paramount federal power over interstate commerce." This language of Mr. Justice Douglas might be taken to mean that, if a regulation is within the commerce power of Congress, there are no other constitutional limitations to be satisfied. But the Court also found it necessary to reject the contention that price-fixing violates the due process clause of the Fifth Amendment. "Price control is one of the means available to the states . . . and to Congress . . . in their respective domains . . . for the protection and promotion of the welfare of the economy." The wisdom of the legislation and the appropriateness of this remedy "are not our concern," says the Court. The sweep of the opinion on this point indicates that price fixing, apparently without regard to the nature of the industry subjected thereto, is not limited by the due process clause of the Fifth Amendment. Regarding the like clause of the Fourteenth, in relation to a state act fixing prices of citrus fruits, the Court said in *Mayo v. Lakeland Highlands Canning Co.* (Feb. 26), "The mere fact that the act fixes prices is, in itself, insufficient to invalidate it; and allegation of that fact does not raise substantial federal questions."

The victory gained for Federal control in the *Sunshine* case can be properly appraised only when juxtaposed to the pessimism of the Court in the case holding the Guffey Act unconstitutional. Neither its holding that the price control measures were inseparable from the labor regulations "nor anything we have said, is to be taken as indicating that the Court is of the opinion that these provisions, if separately enacted, could be sustained," said the Court then. The advance is even more striking when one reads the present opinion in vain for any consideration by the Court whether the actual transactions of the coal producer in the case affected interstate commerce. It may be, however, that all parties were conceding the interstate character of his business.

CONTRACTS WITH THE GOVERNMENT

The increasing concern of the Court to avoid a determination of the validity of national action unless the persons who challenge the government have sufficient standing to litigate the issue was exemplified in *Perkins v. Lukens Steel Co.* (April 29), where the Court refused to consider whether the Secretary of Labor had complied with a direction of Congress embodied in the Walsh-Healey (Public Contracts) Act. Under the act sellers of goods to the United States are required to agree to pay employees not less than the wage determined by the Secretary of Labor to be the minimum prevailing for persons in similar work in the "locality" where the goods are furnished. At the behest of a group of producers of iron and steel the Court of Appeals of the District of Columbia had enjoined the enforcement of the wage determination for their industry, because the Secretary's construction of "locality" as a unit of several states was said to be "an attempt arbitrarily to disregard the statutory mandate." The Court reversed, Mr. Justice McReynolds alone dissenting.

It was unnecessary to inquire whether the Secretary had acted capriciously or not, declared Mr. Justice Black for the Court. This statute, he cautioned, was not a coercive, regulatory measure, but a mere fixing of the terms upon which the Government would allow goods to be sold to it. Congress in purchasing supplies to effectuate its policies enjoys like individuals "the unrestricted power . . . to determine those with whom it will deal, and to fix the terms and conditions upon which it will make needed purchases." So, the agents of Congress in administering its commands are accountable only to their superiors and Congress. It follows that any damage that they cause government sellers by their erroneous interpretation of legislative directions is a damage without legal remedy. Nor did the Court regard with sympathy the desire of the plaintiffs to vindicate any general interest which the public might have in the construction of the act. The public must resort for its protection to the political process, and plaintiffs to have a standing in Court "must show an injury or threat to a particular right of their own." And Mr. Justice Black admonished the lower court that, "Judicial restraint of those who administer the Government's purchasing would constitute a break with settled judicial practice and a departure into fields hitherto wisely and happily apportioned by the genius of our polity to the administration of another branch of Government."

The *Lukens* decision thus takes its place alongside others in the past few years as a significant gain for Federal control in industry. In a day of tremendous buying for national purposes, now vastly expanded in the defense program, the industrial standards insisted upon by the Government in seeking supplies must have deep reverberations throughout the whole economic system. But the Court has substantially removed from the arena of private contest the propriety of the actions of those who administer the nation's purchases.

EXPANDING IMMUNITY FROM JUDICIAL RESTRAINT

The hands-off policy of the Court manifested itself in areas other than government contracts. Thus, freedom of action was assured to the President, operating through the Tariff Commission, in fixing import duties. In *United States v. Bush & Co.* (May 20) the question concerned the Commission's method of calculating the cost of production for Japanese clams, preliminary to the raising of the duties thereon. The Tariff Act authorized the President to proclaim new rates "if in his judgment" such rates are shown by the Commission's investigation to be necessary to equalize differences in costs of production. All of the Court but Mr. Justice McReynolds were of the opinion that this matter was not subject to judicial review. "In substance and to a great extent in form . . . the action of the Commission and the President is but one stage of the legislative process." The judgment of the President that on the facts a change of rate is necessary "is no more subject to judicial review under this statutory scheme than if Congress itself had exercised that judgment. * * *For the judiciary to probe the reasoning which underlies this Proclamation would amount to a clear invasion of the legislative and executive domains."

Two decisions reviewing rulings of the Federal Communications Commission assured to that body considerable freedom in the exercise of national control over radio broadcasting. *Federal Communications Comm'n v. Sanders Brothers* (March 25) involved the contention of a station that the granting of a broadcasting license to another station in the same locality, without any investigation or findings on the economic injury thus caused to the first, was a violation of the Communications Act. But the Court declared (Mr. Justice McReynolds not participating) that the "policy of the Act is clear that no person is to have anything in the nature of a property right as a result of the granting of a license. * * * We hold that resulting economic injury to a rival station is not in and of itself, and apart from considerations of public convenience, interest, or necessity" an element which the Commission must weigh in considering applications for a broadcasting license.

In *Federal Communications Comm'n v. Pottsville Broadcasting Co.* (Jan. 20) the Court put the lower Federal courts on guard to respect the function of effectuating legislative policy that is delegated to administrative bodies by Congress. The Communications Act, declared Mr. Justice Frankfurter for the Court, was not intended so much to confer rights upon individuals seeking to use the radio waves as it was to give Congress "through appropriate administrative control, a grip on the dynamic aspects of radio transmission." Although courts may see that the agency does not commit errors of law, they are not to impede the primary desideratum of "public convenience, interest, or necessity." That objective was too greatly impaired when the court below, upon reversing the Federal Communications Commission for an error of law, ruled that the Commission must proceed at once to re-hear the application for a license on the original record and carry out the mandate of the court. The Commission contended, and the Supreme Court agreed, that it could reopen the whole matter, entertain other applications for the same license, and determine which applicant would best serve the public.

Analogies from the relationship of Federal courts *inter se* were not persuasive, said the Court. For, "the technical rules derived from the interrelationship of judicial tribunals forming a hierarchical system are taken out of their environment when mechanically applied to determine the extent to which Congressional power, exercised through a delegated agency, can be controlled within the limited scope of 'judicial power' conferred by Congress under the Constitution." In short, although under the statutes the Federal courts have power to review the acts of administrative bodies and correct their errors of law, they can only compel obedience to the correction and can not control the character of subsequent carrying out of legislative directions. "Interference by the courts is not conducive to the development of habits of responsibility in administrative agencies," appears now to be the watchword of the Court.

STATE TAXATION OF INTERSTATE COMMERCE

A highlight of the year for nation-state relations was the effort of the Court further to crystallize a rationale for determining what limitations are placed upon the taxing power of the states by the power over interstate commerce delegated to Congress. The chief occasion for this effort was the contest, in *McGoldrick v. Berwind-White Co.* (Jan. 29), over the validity of the New York City sales tax as applied to an interstate transaction. The transaction taxed began with a contract for the purchase of coal entered into in New York City between local customers and the city sales agency of a Pennsylvania mining company. The orders were filled by direct shipment of coal from Pennsylvania with delivery in New York City. The tax was upheld by a divided Court, Chief Justice Hughes, together with Mr. Justice Roberts and Mr. Justice McReynolds, dissenting.

The touchstone for a decision on cases in this field, says Mr. Justice Stone for the majority, is that "courts are called upon to reconcile competing constitutional demands, that commerce between the states shall not be unduly impeded by state action, and that the power to lay taxes for the support of state government shall not be unduly curtailed." More specifically this means that those engaged in interstate commerce must bear "their just share of state tax burdens"; thus a resulting burden on interstate business is not, without more, invalid. On the other hand the Court must carefully scrutinize those state taxes which may become the ready "instrument of impeding or destroying interstate commerce," *e.g.*, those which discriminate against interstate commerce. Even though some taxes may not discriminate against interstate commerce in comparison with the same sort of commerce within the taxing state, they have the vice, as the Court has said in recent decisions, of exposing that commerce to the risk of the same sort of tax by other states with a resulting "multiple burden." The causal and vitiating factor lying behind all such taxes, says Mr. Justice Stone, is that "to the extent that the burden falls on economic interests without the state, it is not likely to be alleviated by those political restraints which are normally exerted on legislation where it affects adversely interests within the state."

The New York sales tax, the Court concluded, was sustained by the above-outlined principles and by prior authority. To the majority the prior decisions sustaining taxes exemplified a due regard for the just balance between national and state power, for those cases emphasized that the taxes upheld "were not so laid . . . as to afford a means of obstruction to commerce or of discrimination against it, and that the extension of the immunity of the commerce clause contended for would be at the expense of state taxing power by withholding from taxation property and transactions within the state without the gain of any needed protection to interstate commerce." The taxpayer, however, contended that those decisions were distinguishable because the taxes there were levied on sales made, without previous contract, after the goods had come into the state, while here the sales were made before, and required shipment of the goods into the state. Indeed it was this difference which led the minority to say that the former were only taxes on *intra*state bargains while the latter was a tax directly on an interstate sale and thus prohibited. But to the majority the distinction was "without the support of reason or authority." Without the support of authority because, though the sales validly taxed in certain cases did not require shipment interstate, they "plainly contemplated" it. And in reason any such distinction was untenable because the Court was "unable to say that the present tax, laid generally upon all sales to consumers within the state, subjects the commerce where the goods sold are brought from other states, to any greater burden or affects it more, in any economic or practical way, whether the purchase order or contract precedes or follows the interstate shipment." The Court also found authority for its position in property, use, and storage taxes all sustained as laid upon goods immediately after an interstate journey. Such taxes "stand in no different relation to interstate commerce and have no different effect upon it than has the present sales tax. . . ."

The minority asserted a conflict between this and prior decisions holding invalid taxes upon the entire gross receipts from interstate trade because of the danger of multiple taxation. Thus, if New York can tax the gross receipts from the sale because of the delivery in that State, "why cannot Pennsylvania by reason of the shipment of the coal in that state tax the gross receipts there? * * * The point is not that the delivery in New York is an event which cannot be taxed by other states, but that the authority of New York to impose a tax on that delivery cannot properly be recognized without also recognizing the authority of other states to tax the parts of the interstate transactions which take place within their borders." To this the majority replied that the rationale of the gross receipts tax cases did not compel defeat of the New York tax which is conditioned upon a local activity, delivery of the goods within the state upon their purchase for consumption, and which burdens interstate commerce no more than "numerous other state taxes which have repeatedly been sustained as involving no prohibited regulation of interstate commerce."

Thus the Court for the first time sustains a tax laid upon what is commonly regarded as an interstate sale of goods. For the protection of that commerce the Court relies upon the lack of discrimination in favor of sales of local goods, and trusts the economic impact of the sales tax upon the people of the taxing state to restrain any temptation of the legislature to raid interstate commerce by an excessive impost. Whether taxes measured by receipts from the whole interstate transaction will be sustained only when there is this accompanying cost to the taxing state's citizens remains for future litigation to disclose.

In sharp contrast to the division of the Court in the *Berwind-White* case is the unanimity with which it acted in *Best & Co. v. Maxwell* (Dec. 23). It held that North Carolina could not lay an annual privilege tax of $250 on persons, not regular retail merchants of the state, who display samples in temporary quarters rented for the purpose of securing orders to be filled by shipment from outside the state. Mr. Justice Reed declared that the essential inquiry was whether the taxing statute in its practical operation discriminated against interstate commerce. "The commerce clause forbids discrimination, whether forthright or ingenious. * * * The freedom of commerce which allows the merchants of each state a regional or national market for their goods is not to be fettered by legislation, the actual effect of which is to discriminate in favor of intrastate businesses, whatever may be the ostensible reach of the language."

But harmony does not reside even in the ranks of the majority in the *Berwind-White* case on what are the bounds of state taxation under the commerce clause, nor on the Court's function in setting those limits. This is amply illustrated by *McCarroll v. Dixie Greyhound Lines* (Feb. 12). Arkansas prohibited motor vehicles from entering the state until the owners paid a tax on the excess of gasoline carried over 20 gallons, obviously aiming at heavy trucks and buses engaged in interstate transportation. The revenues were used to maintain and improve the roads. Mr. Justice McReynolds wrote the decision for the Court invalidating the tax. Mr. Justice Stone delivered a concurring opinion, joined in by the Chief Justice, Mr. Justice Roberts, and Mr. Justice Reed, the rest of the majority. Mr. Justice Black, Mr. Justice Frankfurter, and Mr. Justice Douglas collaborated in a dissenting opinion.

Mr. Justice McReynolds recognized the well-established rule of the cases that a state may require all those using her roads, including those travelling in interstate commerce, to help pay for the upkeep. But such was not this tax, he declared: the facts disclosed "are incompatible with that view. A fair charge could have no reasonable relation to such gasoline. * * * Moreover, we find no purpose to exact fair compensation only from all who make use of the highways." Mr. Justice Stone, after entering upon a more minute examination of the operation of the statute, further concluded that the law "on its face and in its application discriminates against the commerce by measuring the tax by the consumption of gasoline moving and used in interstate commerce which occurs outside the state." The minority, however, strongly urged that the Court had entered upon an improper inquiry. Because of the necessitous treasuries of state governments it was important, they said, to find no conflict of state and national powers "unless conflict is established by demonstrable concreteness." The function of making this adjustment of state taxing power with the national power where no discriminatory objective is shown "is the business of legislation," a task for which the Court is not equipped. At best they would allow the Court a narrow function in the state tax-commerce clause field: "This Court has but a limited responsibility in that state legislation may here be challenged if it discriminates against interstate commerce or is hostile to the congressional grant of authority."

The position of the *McCarroll* minority renews and intensifies the controversy over the scope of the Court's function to negative state action alleged to infringe upon the commerce power of the nation. The issue is now clear. Five members of the Court believe that it should continue to exercise the prerogative it has enjoyed since the days of Marshall, of determining how far the states may go in burdening interstate commerce. Mr. Justice Black began the assault on this prerogative in his lone dissent to the decision of *Adams v. Storen,* 304 U. S. 307 (1938), invalidating a state tax on gross receipts from interstate commerce. He renewed the attack in his solitary opposition in *Gwin, White & Prince v. Henneford,* 305 U. S. 434 (1939). But in the *McCarroll* case he was joined by Justices Frankfurter and Douglas. For these three, the office of the Court is only to prevent state taxation that discriminates against interstate commerce or collides with Congressional action. This liberal attitude toward state action is very much akin to the views expounded by Chief Justice Taney nearly 100 years ago. It stands in sharp contrast to the theories of another sage of constitutional law. In a speech in 1913, Justice Holmes said of the Court's part in our scheme of government: "I do not think the United States would come to an end if we lost our power to declare an Act of Congress void. I do think the Union would be imperiled if we could not make that declaration as to the laws of the several states. For one in my place sees how often a local policy prevails with those who are not trained to national views and how often action is taken that embodies what the Commerce Clause was meant to end."

STATE REGULATION OF INTERSTATE COMMERCE

With the tremendous increase in interstate commercial motor vehicle traffic the states have been confronted with perplexing problems of how to insure safety, lessen wear and tear, and secure revenues for the maintenance of their highways. Attendant upon these practical difficulties has been the constitutional issue of what restraints the commerce power of the nation imposes upon state control, one phase of which issue on the financial side has just been seen in the *McCarroll* case. A decision in 1938, *South Carolina Highway Dept. v. Barnwell Bros.,* 303 U. S. 177, upholding a state regulation of sizes and weights of trucks and buses moving in interstate trade assured a large area of local freedom for traffic control. But the passage of the Federal Motor Carrier Act of 1935, wherein Congress assumed control of certain phases of interstate motor transportation, presented the states with a different puzzle: to what extent did this exercise of national power supersede or deprive the states of their control? This was not a problem of constitutional power, but of legislative purpose.

Such was the issue in *Maurer v. Hamilton* (April 22). A statute of Pennsylvania prohibited the transporting of cars by truck in such a manner than a vehicle would be carried over the cab of the driver. The question was whether the action of the Interstate Commerce Commission permitting such mode of transportation nullified the Pennsylvania regulation. The pertinent provisions of the Motor Carrier Act were those authorizing the Commission to *regulate* interstate carriers to insure "safety of operation and equipment," and to *investigate* the need for national control of the sizes and weights of motor vehicles. A unanimous Court upheld the state law, declaring that the "power of the states to regulate the sizes and weights of loaded motor vehicles was thus left undisturbed" by the Federal Act. After an exhaustive study of the legislative history of the Motor Carrier Act, the Court was convinced that the purpose of the act was to reserve sizes and weights "from the regulatory power of the Commission, quite as much when related to safety as when related to highway construction, pending investigation and report by the Commission of the need for such regulation, and further consideration of the matter by Congress."

The *Maurer* case is important because it reflects an attitude well expressed by Mr. Justice Stone in writing for the Court. "As a matter of statutory construction Congressional intention to displace local laws in the exercise of the commerce power is not, in general, to be inferred unless clearly indicated by those considerations which are persuasive of the statutory purpose. This is especially the case when public safety and health are concerned."

But that such an intention, when clearly indicated, will be respected by the Court is well brought out in another decision on the validity of the New York City sales tax in *McGoldrick v. Gulf Oil Corp.* (Mar. 25). The city taxed the sale of fuel oil, manufactured there from imported crude petroleum and sold to vessels in foreign commerce in compliance with certain Revenue and Tariff Acts of the United States which exempted such oil from any import duty. The purpose of this Congressional exemption was "to enable American refiners to meet foreign competition and to recover trade which had been lost" by the tariff duty. The taxpayer asserted that the city tax conflicted with this policy of Congress and was invalid. The Court agreed. On the other hand, in *West India Oil Co. v. Domenech* (Nov. 12) the Court found ample evidence of Congressional consent for a Puerto Rican sales tax laid on the delivery of fuel oil which had previously been imported in bond and then withdrawn duty free for use in vessels on their voyages to the United States or foreign countries.

EXTRA-STATE AFFAIRS AND INTERNAL ECONOMIC INTERESTS

The lengthening reach of a state's arm, whether to gather to itself control of affairs transacted in part beyond its borders or to take tax toll from like events, was given strength by the Court. The trend is illustrated in two decisions involving out-of-state corporations. The first was *Osborn v. Ozlin* (April 22). Virginia required all insurance companies licensed to do business in that state to issue insurance policies (except on life, title, or marine risks) through resident Virginia commission agents who were to receive at least half of the commissions. The plaintiffs were licensed to do business in Virginia, though many of their insurance contracts on Virginia risks were made outside of the state. They charged that the state's action violated the due process clause of the Fourteenth Amendment because the legislature was exceeding its territorial jurisdiction. The Court decided otherwise, in an opinion by Mr. Justice Frankfurter. Mr. Justice Roberts, joined by Mr. Chief Justice Hughes and Mr. Justice McReynolds, dissented.

The bare fact that state action may have repercussions beyond state lines is not the Court's concern, said the majority. Rather, the Court thought that Virginia may well have believed that if resident Virginia agents were made conduits for insurance of Virginia risks, "the state may have better means of acquiring accurate information for the effectuation of measures which it deems protective of its interests." In such a situation, "it would savor of intolerance for us to suggest that a legislature could not constitutionally entertain the views which the legislation adopts." To the minority the statute was naught but a "plain effort of Virginia . . . to compel a nonresident to pay a resident of Virginia for services which the latter does not in fact render and is not required to render. The principles underlying former decisions of this court are at war with the existence of any such asserted power." The majority did not think they were overruling prior authority, but their decision seems to depart from the earlier policy of looking askance at efforts to regulate contracts made beyond the state even though the contract affects matters of concern to the state. The criterion now seems to emphasize less where-the contract was formally made and more the state's interest in the extra-state transaction.

The second was *Wisconsin v. Penney Co.* (Dec. 16) which sustained the Wisconsin "Privilege Dividend Tax." This tax, in an amount "equal to two and one-half percentum of the amount of such dividends declared and paid by all corporations (foreign and local)," was imposed for the "privilege of declaring and receiving dividends, out of income derived from property located and business transacted" within the state. In respect of foreign corporations the amount of income attributable to Wisconsin was calculated according to the formula employed in assessing the general corporate income tax paid by such corporations. Its practical operation, said the Supreme Court, "is to impose an additional tax on corporate earnings within Wisconsin, but to postpone the liability for this tax until such earnings are paid out in dividends. In a word, by its general income tax, Wisconsin taxes corporate income that is taken in; by the Privilege Dividend Tax of 1935 Wisconsin superimposed upon this income tax a tax on corporate income that is paid out."

A Delaware corporation with its principal office in New York (where its meetings were held, dividends voted, and checks drawn) contended, and the Supreme Court of Wisconsin concluded, that the tax was an unlawful attempt by Wisconsin to levy an exaction on transactions beyond its borders. In reversing the judgment the Court said: "For constitutional purposes the decisive issue turns on the operating incidence of a challenged tax. A state is free to pursue its own fiscal policies, unembarrassed by the Constitution, if by the practical operation of a tax the state has exerted its power in relation to opportunities which it has given, to protection which it has afforded, to benefits which it has conferred by the fact of being an orderly, civilized society. * * * The simple but controlling question is whether the state has given anything for which it can ask return. The substantial privilege of carrying on business in Wisconsin, which has here been given, clearly supports the tax, and the state has not given the less merely because it has conditioned the demand of the exaction upon happenings outside its own borders. The fact that a tax is contingent upon events brought to pass without a state does not destroy the nexus between such a tax and transactions within a state for which the tax is an exaction."

There was a vigorous dissent in an opinion by Mr. Justice Roberts, concurred in by Mr. Chief Justice Hughes and Justices McReynolds and Reed. After pointing out that the company received income in many states, that the income was forwarded to its home office after bearing whatever tax is laid upon its receipts in the state of receipt, that thereupon the funds so forwarded become a portion of the general mass of the respondent's property, and that such funds may be employed in the extension of its business or held as insurance against future business losses or distributed to its stockholders in dividends, the minority concluded that the disbursement of such funds "have no relation to the original receipt of income save only the fact that, like most property, they are built up as the fruits of income. Their use and their disbursement does not depend on any law of Wisconsin and cannot be controlled by any such law. The act of disbursing them, whether in payment of corporate obligations or as dividends, is one wholly beyond the reach of Wisconsin's sovereign power, one which it cannot effectively command, or prohibit or condition."

Madden v. Kentucky (Jan. 29) illustrates another aspect of the reach of state power. As recently as 1935 the Court had held (*Colgate v. Harvey,* 296 U.S. 404) that the making of extra-state investments free from discriminatory taxation based upon their extra-state character constituted a privilege of Federal citizenship protected against abridgment by the privileges and immunities clause of the Fourteenth Amendment. Never before had a decision of the Court given substance to that clause. And even this was a short-lived decision; for 1940 witnessed a retrenchment on the economic aspect of the privileges of national citizenship and a consequent overruling of the 1935 decision. The *Madden* case presented the clear-cut issue: may Kentucky tax the deposits of her residents in out-of-state banks at a rate five times that on their deposits within the state? The taxpayer rested on his supposed immunity as a citizen of the nation. But the majority of the Court upheld the tax, Justices Roberts and McReynolds dissenting, and the Chief Justice concurring in the result only. Mr. Justice Reed for the majority declared that it is "quite clear that the right to carry out an incident to a trade, business or calling such as the deposit of money in banks is not a privilege of national citizenship." Such privileges are concerned only with relationships to the National Government.

Efforts of individuals to resist the onsweep of control of economic life within the state fared poorly. Those relying upon supposed constitutional protections or earlier cases against legislative interference were, in effect, met by the Court's sentiment expressed in a form that has become a favorite of some of the Justices: "Legislatures are ultimate guardians of the liberties and welfare of the people in quite as great a degree as the courts." The "erosion of time" was counted on to take out a decision thought to stand in the way of state advancement of its economic policy. In *Tigner v. Texas* (May 6) it was contended that the Texas anti-trust statute denied the equal protection of law prescribed by the Fourteenth Amendment because it exempted from its criminal penalties combinations of agricultural producers. The Court, Mr. Justice McReynolds disagreeing, upheld the act. "The equality at which the 'equal protection' clause aims is not a disembodied equality," said Mr. Justice Frankfurter. "The Constitution does not require things which are different in fact or opinion to be treated in law as though they were the same." With that as its guide the Court, after scanning economic history and the experience encountered in a long line of state and national regulation, saw plentiful evidence that "agriculture expresses functions and forces different from the other elements in the total economic process." These were differences which the lawmakers could recognize. The authority of a decision of nearly 40 years' standing (*Connolly v. Union Sewer Pipe Co.,* 184 U.S. 540), which had invalidated an almost identical classification of the farmer in an Illinois statute, was said to have been "worn away by the erosion of time and we are of the opinion that it is no longer controlling."

In another case from Texas, *Railroad Commission v. Rowan & Nichols Oil Co.* (June 3rd) the Court upheld against due process objections of confiscation the state commission's proration of oil production according to a percentage of hourly productive capacity, granting exemptions to marginal producers. Mr. Justice Frankfurter, again writing the majority opinion, declared: "Certainly in a domain of knowledge still shifting and growing, and in a field where judgment is therefore necessarily beset by the necessity of inferences bordering on conjecture even for those learned in the art, it would be presumptuous for courts, on the basis of conflicting expert testimony, to deem the view of the administrative tribunal, acting under legislative authority, offensive to the Fourteenth Amendment." Mr. Justice Roberts, the Chief Justice, and Mr. Justice McReynolds joining him, dissented in the belief that prior authority was being overruled.

Further gain for state control came with *Veix v. Sixth Ward Building & Loan Assn.* (April 22). To meet the threat of wrecked associations and a consequent further depression of real estate values, the New Jersey legislature tightened up the requirements for withdrawal of shares by members.

The litigant had been unable to satisfy the new conditions, and contended that this action of the state unconstitutionally impaired the obligation of his contract with his Association. Not so, said a unanimous Court. "With institutions of such importance to its economy, the State retains police powers adequate to authorize the enactment of statutes regulating the withdrawal of shares." And not the less so because prior contractual relations are altered, because they too are "subject to the paramount police power. * * * Such authority is not limited to health, morals and safety. It extends to economic needs as well."

LIBERTY OF THE MIND

A religious sect known as "Jehovah's Witnesses" has been playing a leading role in the legal drama in which the Court has lately come to interpret the constitutional guarantee of freedom of religion. In 1940 the Court gave hearing to the "Witnesses" and handed down two significant decisions on the range of constitutionally protected religious activity. In *Cantwell v. Connecticut* (May 20), members of the sect had been convicted by a state court of violating a statute which required, as a condition for soliciting money for any "alleged religious cause," that a license be obtained from a public official who was to determine whether the cause was really religious; in addition, one of their members had been found guilty of the common law crime of inciting a breach of the peace by an offensive attack on the religion of his listeners. The Court unanimously reversed these convictions.

Thereby, for the first time, it unequivocally held that freedom of religion, secured by the First Amendment against impairment by Congress, is a "fundamental concept of liberty" protected from state oppression by the Fourteenth Amendment. The decision was not surprising; for favorable dicta in prior cases and the analogy of the free speech and press cases had set the stage for the pronouncement. Indeed, the fact that members of this religious body were also parties in the pamphleteering case (see THE AMERICAN YEAR BOOK, 1939, p. 50) indicates that the freedom to expound religious doctrine and to evangelize can be protected as readily under the guarantee of freedom of speech and press as under that of religious liberty. The opinion, written by Mr. Justice Roberts, is noteworthy for some general observations with regard to the characteristics of religious freedom: "The constitutional inhibition of legislation on the subject of religion has a double aspect. On the one hand, it forestalls compulsion by law of the acceptance of any creed or the practice of any form of worship. Freedom of conscience and freedom to adhere to such religious organization or form of worship as the individual may choose cannot be restricted by law. On the other hand, it safeguards the free exercise of the chosen form of religion. Thus the Amendment embraces two concepts—freedom to believe and freedom to act. The first is absolute but, in the nature of things, the second cannot be. Conduct remains subject to regulation for the protection of society."

An additional feature of the *Cantwell* case needs to be noted, namely, the determination that the state *court's* conviction of one of the defendants for the common law offense of inciting a breach of the peace also violated religious liberty. This is believed to be the first decision declaring that a *court,* not engaged in enforcing a *statute,* had deprived a citizen of some *substantive* right (as contrasted with a *procedural* right, such as the right of one accused of crime to the benefit of counsel) safeguarded by the due process clause of the Fourteenth Amendment.

In the light of the *Cantwell* case and its predecessors the Court seemed ready to subject all measures curtailing civil liberties to a rigorous and independent judicial scrutiny with no presumption running in favor of the reasonableness of the legislative action. On this background the case of

Minersville School District v. Gobitis (June 3) came as a surprise. The Court determined that a Pennsylvania school board could require, as a condition for attendance at public school, that children take part in the ceremony of saluting the American flag even though this violated their religious beliefs. That freedom of conscience is not absolute was clear, said the Court, for "to affirm that the freedom to follow conscience has itself no limits in the life of a society would deny that very plurality of principles which, as a matter of history, underlies protection of religious toleration." The precise issue then was whether the school authorities were "barred from determining the appropriateness of various means to evoke that unifying sentiment without which there can be no liberties, civil or religious." The Court's view of the high value of the public interest in state loyalty led it to say that the "wisdom of training children in patriotic impulses by those compulsions which necessarily pervade so much of the educational process is not for our independent judgment."

Mr. Justice Stone dissented. He insisted that the "guaranties of civil liberty are but guaranties of freedom of the human mind and spirit and of reasonable freedom and opportunity to express them. * * * If these guaranties are to have any meaning they must, I think, be deemed to withhold from the state any authority to compel belief or the expression of it where that expression violates religious convictions, whatever may be the legislative view of the desirability of such compulsion." And even assuming that there was some room for legislative compulsion of expressions of loyalty which violated religious scruples, he was not at all in accord with the trust which the majority reposed in the legislature's selection of means to accomplish its end. Furthermore, he was "not persuaded that we should refrain from passing upon the legislative judgment 'as long as the remedial channels of the democratic process remain open and unobstructed' [a phrase used by the majority]. This seems to me no more than the surrender of the constitutional protection of small minorities to the popular will." The *Minersville* case takes on added significance at a time when so much of governmental control concerns national unity and security. It may presage a judicial leniency toward such regulation, even though civil liberties be curtailed.

Two cases, both decided on April 22, further augmented the protective operation of the Fourteenth Amendment for free speech and press in publicizing industrial disputes. In *Thornhill v. Alabama* the Court was confronted with the conviction of a labor leader who violated a state statute prohibiting picketing, peaceful or otherwise, near a place of business. The municipal ordinance under which another was convicted in *Carlson v. California* had the added feature of prohibiting such activity on public property, as well as the carrying of any banner publicizing a dispute with a place of business. The *Hague v. C.I.O.* decision of 1939 (307 U.S. 496) brought within the coverage of the Fourteenth Amendment freedom to assemble and discuss national labor legislation. In holding the above enactments unconstitutional, the Court brings under its aegis a new phase of labor activity—the publicizing of industrial disputes. "In the circumstances of our times," wrote Mr. Justice Murphy in the *Thornhill* opinion, "the dissemination of information concerning the facts of a labor dispute must be regarded as within that area of free discussion that is guaranteed by the Constitution. * * * Free discussion concerning the conditions in industry and the causes of labor disputes appears to us indispensable to the effective and intelligent use of the processes of popular government to shape the destiny of modern industrial society."

That the laborer was not using the channels of communication to impart disinterested information, but was seeking to bring the employer to terms by diminishing his trade or working force, did not cause the Court concern. "Abridgment of the liberty of such discussion can be justified only where the clear danger of substantive evils arises under circumstances affording no opportunity to test the merits of ideas by competition for acceptance in the market of public opinion. We hold that the danger of injury to an industrial concern is neither so serious nor so imminent as to justify the sweeping proscription of freedom of discussion. . . ." Freedom of speech and of the press "embraces at least the liberty to discuss publicly and truthfully all matters of public concern without previous restraint or fear of subsequent punishment."

CRIMINAL PROCEDURE

On several occasions during the year there came before the Court for review the treatment accorded by a state to individuals accused of crime. In settling these controversies under the due process clause of the Fourteenth Amendment, the Court continued its "vigilant concern" that the procedural safeguards "implicit in the concept of ordered liberty" be observed. Yet it sought to preserve a fair range for the states' determination of local social policy. This latter consideration was alluded to by the Court in the favorable decision gained by the state in *Avery v. Alabama* (Jan. 2). Avery, within the space of four days, had been arraigned, tried, and found guilty of murder. He claimed that failure of the trial court to give his counsel an extension of time to prepare his defense in reality deprived him of that assistance of counsel which the Court in the Scottsboro case of 1932 had held was demanded by the due process clause. Conceding that denial of the opportunity of counsel to consult with the accused and prepare his defense "could convert the appointment of counsel into a sham," Mr. Justice Black for a unanimous Court concluded that on the record counsel could not have done more on behalf of the accused had additional time been granted. Mr. Justice Black adduced in support of the rather swift dispensing of justice in the trial court the fact that "people in these rural counties know each other" and many come "from every part of the County into the County seat for court." In this situation the trial judge could have reasonably decided that counsel had adequate opportunity to gather evidence and lay a defense within the time allowed.

No such toleration was shown by the Court for the states' tactics disclosed in the cases of *Chambers v. Florida* (Feb. 12) and *White v. Texas* (May 27). The record in each left no doubt that the conviction and sentence to death of the respective defendants rested solely upon confessions obtained by coercion. That coercion took the form in the *Chambers* case of five days and a night of "third degree" questioning "which 'broke' petitioner's will," and in the *White* case of repeated physical beatings. A decision in 1936, *Brown v. Mississippi* (297 U.S. 278), arising on similar facts, was ample authority for condemning the acts of the state prosecutors.

The Court was faced with an unusual task in *Minnesota ex rel. Pearson v. Probate Court* (Feb. 26). Minnesota, in 1939, applied its laws on insanity to persons with a "psychopathic personality," defined (as interpreted by the State Supreme Court) as the condition of those socially dangerous because of their uncontrollable sexual impulses as evidenced by habitual misconduct. Pearson, who was about to be proceeded against under the statute, sought to prevent the judge from entertaining the proceeding. He maintained that the statute was indefinite, discriminatory, and subject to administrative abuse, all in violation of the due process and equal protection provisions of the Fourteenth Amendment. The Court did not heed his plea. Mr. Chief Justice Hughes, writing the opinion for the Court, found the definition of the offense sufficiently precise to meet the requirements of due process. Nor did the Court think there was a denial of equal protection of law because the legislature selected for treatment a class constituting a dangerous element in the community even though others beyond its confines also merited treatment. However, the Court sounded a note of warning, quite in accordance with its disposition of the "confession" cases above, that it was aware of the threat to personal liberty "where the law though 'fair on its face and impartial in appearance' may be open to serious abuses in administration and courts may be imposed upon if the substantial rights of the persons charged are not adequately safeguarded at every stage of the proceedings."

Smith v. Texas (Nov. 25) affords a new example of the careful scrutiny which the Court will give to the actual operation of state jury systems where constitutional objections are involved. The petitioner, a Negro, had been convicted upon an indictment by a grand jury from which, as he contended and the Court found, members of his own race had been systematically excluded on account of their race. The conviction was reversed. "The fact that the written words of a State's laws hold out a promise that no such discrimination will be practiced is not enough. The Fourteenth Amendment requires that equal protection to all must be given—not merely promised. * * * If there has been discrimination, whether accomplished ingeniously or ingenuously, the conviction cannot stand."

OTHER ELECTIONS OF 1940

By Thomas N. Hoover
Professor, Ohio University

THE 77TH CONGRESS

Next in importance to the presidential election was that of members of the 77th Congress. The political complexion of Congress in the Senate is 66 Democrats, 28 Republicans, one Progressive and one Independent; in the House of Representatives, 268 Democrats, 162 Republicans, three Progressives, one Farmer-Labor, and one American Labor.*

STATE ISSUES

Alabama.—An amendment relating to a bond issue was approved, also one granting the right to the legislature to fix fees. Four others of local nature were likewise approved.

Arizona.—A proposed amendment relating to state lands, an act relating to the status of irrigation districts, and an act relating to Uniform Auto Lieu tax, and a measure providing for state aid for public education were approved. Proposals for tax free homes, relating to public service corporations, tax limitations, regulation of dental advertising, to legalize gambling, and division of gasoline taxes were rejected.

Arkansas.—Seven amendments were submitted to the voters, two of which were approved. One of these, providing for maintenance of public libraries, was approved 107,115 to 56,500; the other, providing for retirement funds for policemen and firemen, was approved 115,138 to 51,749. The Rotenberry Old Age Pension Plan was rejected, 125,128 to 47,769. Three acts were referred to the voters, two of which were approved. These provided for workmen's compensation, and for bringing suits for damages of accidents or deaths in the county in which the accident occurred.

California.—Eight laws were adopted by the voters, and nine defeated. The laws adopted pertained to releasing certain encumbrances, institution for felons, election returns, fish and game commission, property for public use, state shares in mutual water companies, and legislative committees. The nine defeated pertained to daylight saving, court review of acts of boards and commissions, appellate courts, tax-exempt vessels, state parks containing oil or gas deposits, money for local purposes, funds of city treasurer, budgets, and liability insurance for public employees.

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* The votes on state issues, Governors and Members of Congress, were made possible by the Secretaries of State of the different states.

Colorado.—Proposals for taxation, legalize betting on races, legalize racing, conservation commission, and old age pensions were all rejected.

Idaho.—Three proposed amendments were ratified, one relating to investment of endowment funds, by a vote of 88,738 to 53,158; one authorizing the legislature to match Federal benefits, by a vote of 86,328 to 50,029; and one limiting the use of taxes from gasoline to road purposes by a vote of 108,358 to 41,145. Two initiated proposals, one for county local option and one known as "The Idaho Sobriety Act," were rejected.

Illinois.—An amendment to the general banking law was approved by a vote of 775,170 to 363,136.

Indiana.—The three amendments submitted were approved. One eliminating the double liability was approved, 355,578 to 267,589; another permitting the legislature to fix the liability was approved, 344,262 to 229,370; the other eliminating the requirement that banks renew their charters every 20 years was approved, 325,280 to 242,846.

Louisiana.—Twenty-eight proposed amendments were submitted, of which 19 were ratified. These related to qualifications for voting, civil service, financial administration, taxes on motor vehicles, voting machines, method of voting, bonds for highway construction, Louisiana State University, Port of New Orleans, coast guard station, judicial districts, milk production, and confederate pensions.

Maine.—Four proposals, all having to do with the sale of liquor, were submitted to the voters of the cities and towns. The urban centers generally voted "yes," and the rural communities voted "no."

Maryland.—A proposed amendment giving the Court of Appeals power to appoint the clerk of the court was approved, 121,080 to 73,653. One providing for "People's Courts" was approved, 172,616 to 72,371. One removing the exemption from income taxes of salaries of public officials was approved, 131,330 to 67,456. The proposal that the governor would not be eligible for a second successive term was rejected, as was also one limiting sessions of the general assembly to a 90-day term and an annual pay of $750 per member. An act revising the state workmen's compensation act was approved, 127,754 to 70,580.

Michigan.—Two amendments and two acts were referred to the voters who approved one of each. The amendment providing for a new system of civil service was approved, 766,764 to 709,894. The dental act was approved, 735,053 to 516,597.

Mississippi.—An amendment relative to the administration of school lands was approved, 117,519 to 14,196.

Missouri.—Seven amendments were submitted to the voters, all of which were rejected except one.

Montana.—By a vote of 58,968 to 52,998 a 3½ mill levy for a greater university was carried. A bond issue for state hospital for insane was approved by 75,824 to 38,249.

Nevada.—A proposed amendment limiting taxes on motor vehicles and gasoline for road purposes was approved, 28,679 to 6,831. One providing for election procedure was approved 24,026 to 5,882. One prohibiting the abolishing of counties without the consent of its voters was approved, 22,524 to 8,683.

New Hampshire.—The voters approved questions relating to state liquor stores and beverages by votes of 104,704 to 34,853, and 110,685 to 37,233.

New Mexico.—Two amendments were submitted to the voters, but neither received the necessary three-fourth majority for ratification. One had to do with regulation of elections, the other with the business of the legislature.

North Dakota.—A constitutional amendment and two initiated measures, all having to do with taxation problems, were rejected.

Oregon.—Five amendments and four bills were referred to the voters, who rejected all of them.

South Carolina.—Five amendments to the constitution were approved, one for the levy of taxes biennially, by vote 30,762 to 11,664; one for special sessions of the legislature, 30,901 to 10,107; one relating to municipal elections, 25,827 to 9,472; one providing for biennial sessions of the legislature, 29,633 to 8,560; and one concerning municipal bonded indebtedness, 18,588 to 4,754.

South Dakota.—Three constitutional amendments and one referred law were submitted to the voters, who rejected all except one amendment, which limits to certain purposes certain taxes. It was approved by a vote of 142,782 to 109,259. Other proposals provided that the governor could by appointment fill vacancies in the state legislature; and that school funds from counties be turned over to the state.

Tennessee.—Two amendments were submitted to the voters, each received a majority of the votes cast thereon, but since it requires a majority of votes cast for members of the legislature, both failed. The one providing for increase in compensation for members of the legislature received 158,216 to 77,614; the other providing for a four-year term for governor received 171,209 to 68,506.

Texas.—Three proposed amendments were ratified. One provided that notaries public be appointed by the secretary of state; another that terms of office of persons under civil service would not be limited to two years; the third dealt with the direct appeal to the supreme court in certain cases.

Utah.—An amendment to the constitution relating to liability of stockholders of banks was approved, 81,679 to 11,973.

Washington.—An initiated bill relative to Public Utility's District bond issues was rejected. An old age pension initiated bill was approved, 358,009 to 258,819. A legislative bill limiting rates of taxes was approved, 390,639 to 149,843. An amendment to the constitution relating to liability of stockholders in banks was approved, 255,047 to 188,929. An amendment to limit to two successive terms the tenure of county officers was rejected, as was also one relating to salaries of state officials.

West Virginia.—Three proposed amendments were rejected by large majorities.

Wyoming.—An amendment relating to internal improvements was approved 62,871 to 29,389.

ALABAMA

Representatives in Congress

1.	Frank W. Boykin	Dem.	25,995
2.	George Grant	Dem.	33,433
3.	Henry B. Steagall	Dem.	22,906
	Thomas G. McNaron	Rep.	81
4.	Sam Hobbs	Dem.	24,870
	Thomas G. McNaron	Rep.	3,428
5.	Joe Starnes	Dem.	31,966
6.	Pete Jarman	Dem.	18,881
7.	Walter W. Bankhead	Dem.	27,696
	A. W. Hargett	Rep.	11,368
8.	John J. Sparkman	Dem.	29,020
9.	Luther Patrick	Dem.	39,660
	W. A. Denson	Ind.	342

ARIZONA

Governor

Sidney P. Osborn	Dem.	97,606
Jerrie W. Lee	Rep.	50,358
Charles R. Osburn	Prog.	1,003

ARIZONA (*Continued*)

U. S. Senator

	Ernest W. McFarland	Dem.	101,495
	Irving A. Jennings	Rep.	39,657

Representatives in Congress

	John R. Murdock	Dem.	99,424
	K. T. Palmer	Rep.	40,360

ARKANSAS

Governor

	Homer M. Adkins	Dem.	184,578
	Harley C. Stump	Rep.	16,600

Representatives in Congress

1.	E. C. Gathings	Dem.	33,127
2.	Wilbur D. Mills	Dem.	26,105
3.	Clyde T. Ellis	Dem.	21,060
	———	Rep.	8,566
4.	Fadjo Cravens	Dem.	28,999
5.	D. D. Terry	Dem.	36,067
6.	W. F. Norrell	Dem.	27,972
7.	Oren Harris	Dem.	26,994

CALIFORNIA

U. S. Senator

	Hiram W. Johnson	Rep.; Dem.; Prog.	2,238,899
	Fred Dyster	Prohib.	366,044
	Anita Whitney	Com.	97,478

Representatives in Congress

1.	Clarence F. Lea	Dem.; Rep.	103,547
	Albert J. Lima	Com.	5,647
2.	Harry L. Englebright	Dem.; Rep.; Twd.; Prog.	71,033
3.	Frank H. Buck	Dem.; Rep.	135,461
	C. H. Farman	Prohib.	10,539
	Charles Gricus	Com.	2,751
4.	Thomas Rolph	Rep.	75,369
	Franck R. Havenner	Dem.; Prog.	61,341
	Archie Brown	Com.	1,322
5.	Richard J. Welch	Rep.; Dem.	119,122
	Walter R. Lambert	Com.	5,232
6.	Albert E. Carter	Rep.; Dem.; Town.; Prog.	131,584
	Clarence Paton	Com.	5,426
7.	John H. Tolan	Dem.	72,838
	Ralph R. Eltse	Rep.	56,808
	Alfred N. Johnson	Com.	1,707
8.	John Z. Anderson	Rep ; Dem.	148,180
	Elizabeth Nicholas	Com.	5,186
9.	Bertrand W. Gearhart	Rep.; Dem.	99,708
10.	A. J. Elliott	Dem.; Rep.	125,845
	Louretta Adams	Com.	3,826
11.	Carl Hinshaw	Rep.; Dem.; Prog.	170,504
	Orla E. Lair	Com.	6,003
12.	H. Jerry Voorhis	Dem.	99,494
	Irwin W. Minger	Rep.	54,731
	Albert Lewis	Com.	1,152
13.	Charles Kramer	Dem.; Rep.	127,167
	Charles H. Randall	Prohib.; Prog.	36,406
	Celeste Strack	Com.	4,434
14.	Thomas F. Ford	Dem.	73,137
	Herbert L. Herberts	Rep.	37,939
	Pettis Perry	Com.	2,732
15.	John M. Costello	Dem.	94,435
	Norris J. Nelson	Rep.; Prog.	71,667
	Emil Freed	Com.	2,004
16.	Leland M. Ford	Rep.; Dem.	188,049
	George C. Sandy	Com.	7,017
17.	Lee E. Geyer	Dem.	75,109
	Clifton A. Hicks	Rep.	32,862
	Samuel C. Converse	Prog.	5,649
	Harry L. Gray	Com.	1,118
18.	Ward Johnson	Rep.	73,932
	Byron N. Scott	Dem.	60,764
	George R. Ashby	Com.	1,355

CALIFORNIA *(Continued)*

Representatives in Congress

19.	Harry R. Sheppard	Dem.	84,931
	Lotus H. Loudon	Rep.	75,495
20.	Ed V. Izac	Dem.	69,874
	Ed Fletcher	Rep.	66,132
	Esco L. Richardson	Com.	806

COLORADO

Governor

Ralph L. Carr	Rep.	296,671
George E. Saunders	Dem.	245,292
Carle Whitehead	Soc.	2,211
Laurence W. Coffman	Prohib.	1,462

Representatives in Congress

1.	Lawrence Lewis	Dem.	110,078
	James D. Parriott	Rep.	59,427
2.	William S. Hill	Rep.	76,879
	Fred Cummings	Dem.	66,662
3.	J. Edgar Chenoweth	Rep.	70,842
	Byron C. Rogers	Dem.	65,269
3.	To fill vacancy		
	William E. Burney	Dem.	68,225
	Henry Leonard	Rep.	65,675
4.	Edward T. Taylor	Dem.	44,095
	Paul W. Crawford	Rep.	30,126

CONNECTICUT

Governor

Hurley	Dem.	388,361
Baldwin	Rep.	373,799
McLevy	Soc.	18,090

U. S. Senator

Maloney	Dem.	416,740
Cornell	Rep.	357,574

Representatives in Congress

At large, one to elect

	Maciora	Dem.	407,868
	Monkiewicz	Rep.	365,851
1.	Kopplemann	Dem.	109,880
	Miller	Rep.	92,207
2.	Fitzgerald	Dem.	63,021
	Ball	Rep.	56,825
3.	Shanley	Dem.	84,439
	Compton	Rep.	72,870
4.	Downs	Dem.	90,942
	Austin	Rep.	90,239
	Moffatt	Soc.	4,262
5.	Smith	Dem.	62,783
	Johnson	Rep.	51,049

DELAWARE

Governor

Walter W. Bacon	Rep.	70,629
Josiah Marvel, Jr.	Dem.	61,237
Ivan Culbertson	Lib.; Dem.	2,958

U. S. Senator

James M. Tunnell	Dem.	68,294
John G. Townsend, Jr.	Rep.	63,799
William F. Allen	Lib.; Dem.	2,786

Representatives in Congress

Philip A. Traynor	Dem.	68,205
George S. Williams	Rep.	64,384
Royden C. Caulk	Lib.; Dem.	2,189

FLORIDA

Governor

Spessard L. Holland	Dem.	334,152

U. S. Senator

Charles O. Andrews	Dem.	323,216

FLORIDA (*Continued*)

Representatives in Congress

J. Hardin Peterson	Dem.	88,158
R. A. Green	Dem.	68,797
Francis McHale	Rep.	8,382
Bob Sikes	Dem.	36,562
Pat Cannon	Dem.	84,594
Bert L. Acker	Rep.	27,815
John Hendricks	Dem.	49,715
Emory Akerman	Rep.	16,214

IDAHO

Governor

Chase A. Clark	Dem.	120,420
C. A. Bottolfsen	Rep.	118,17

U. S. Senator

John Thomas	Rep.	124,535
Glen Taylor	Dem.	110,614

Representatives in Congress

1.	Compton I. White	Dem.	62,107
	Edward Gaffney	Rep.	37,999
2.	Henry Divorshak	Rep.	69,804
	Ira H. Masters	Dem.	61,726

ILLINOIS

Governor

Dwight H. Green	Rep.	2,197,778
Harry B. Hershey	Dem.	1,940,833
Arthur G. McDowell	Soc.	7,523
Clay F. Gaumer	Prohib.	6,467

U. S. Senator (to fill vacancy)

C. Wayland Brooks	Rep.	2,045,924
James M. Slattery	Dem.	2,025,097
Enoch A. Holtwick	Prohib.	8,625
Clarence H. Mayer	Soc.	6,517

Representatives in Congress

At large (two to elect)

	William G. Stratton	Rep.	2,050,493
	Stephen A. Day	Rep.	2,020,008
	T. V. Smith	Dem.	1,968,143
	Walter J. Orlikoski	Dem.	1,913,950
1.	Arthur W. Mitchell	Dem.	34,641
	William E. King	Rep.	30,698
2.	Raymond S. McKeough	Dem.	155,698
	P. H. Moynihan	Rep.	146,927
3.	Edward A. Kelly	Dem.	148,382
	Waldemar J. Roehler	Rep.	141,768
4.	Harry P. Beam	Dem.	74,977
	Henry F. Schmudde	Rep.	21,858
5.	A. J. Sabath	Dem.	35,637
	Martin Dykema	Rep.	14,540
6.	A. F. Maciejewski	Dem.	187,393
	Joseph Wagner	Rep.	146,253
7.	Leonard W. Schuetz	Dem.	229,161
	James C. Moreland	Rep.	220,793
8.	Leo Kocialkowski	Dem.	40,074
	Anthony V. Champagne	Rep.	11,232
9.	Charles S. Dewey	Rep.	56,806
	James McAndrews	Dem.	49,816
10.	George A. Paddock	Rep.	199,418
	John Haderlein	Dem.	125,827
11.	Chauncey W. Reed	Rep.	128,645
	Edgar O. Eakin	Dem.	70,518
12.	Noah M. Mason	Rep.	90,744
	August C. Engh	Dem.	58,945
13.	Leo E. Allen	Rep.	65,698
	John B. Hayes	Dem.	31,502

ILLINOIS (*Continued*)

Representatives in Congress

14.	Anton J. Johnson	Rep.	60,909
	Forest Dizotell	Dem.	55,451
15.	Robert B. Chiperfield	Rep.	65,639
	Russell M. Gunn	Dem.	50,820
16.	Everett M. Dirksen	Rep.	79,780
	M. R. Clark	Dem.	57,567
17.	Leslie C. Arends	Rep.	56,712
	J. Joseph Pitts	Dem.	36,102
18.	Jessie Sumner	Rep.	64,409
	James A. Meeks	Dem.	56,744
19.	William H. Wheat	Rep.	75,933
	Alfred D. Huston	Dem.	74,091
20.	James M. Barnes	Dem.	44,824
	Hardin E. Hanks	Rep.	41,806
21.	Evan Howell	Rep.	67,896
	Frank W. Fries	Dem.	63,740
22.	Edwin M. Schaefer	Dem.	98,162
	Calvin D. Johnson	Rep.	84,381
23.	Laurence F. Arnold	Dem.	64,072
	Ben O. Sumner	Rep.	61,521
24.	James V. Heidinger	Rep.	49,731
	Claude V. Parsons	Dem.	43,050
25.	C. W. Bishop	Rep.	69,165
	Kent E. Keller	Dem.	67,891

INDIANA

Governor

	———— Schricker	Dem.	889,620
	———— Hillis	Rep.	885,657

U. S. Senator

	———— Willis	Rep.	888,070
	———— Minton	Dem.	864,803

Representatives in Congress

1.	———— Schulte	Dem.	71,606
	———— Belshaw	Rep.	45,947
2.	———— Halleck	Rep.	87,652
	———— Cox	Dem.	63,290
3.	———— Grant	Rep.	73,914
	———— Sands	Dem.	70,208
4.	———— Gillie	Rep.	80,259
	———— Corbett	Dem.	58,157
5.	———— Harness	Rep.	78,691
	———— Wolf	Dem.	65,200
6.	———— Johnson	Rep.	80,595
	———— Bauer	Dem.	73,499
7.	———— Landis	Rep.	81,632
	———— Bedwell	Dem.	74,746
8.	———— Boehne	Dem.	87,141
	———— Werner	Rep.	69,761
9.	———— Wilson	Rep.	71,624
	———— Crowe	Dem.	69,227
10.	———— Springer	Rep.	80,725
	———— Ward	Dem.	71,428
11.	———— Larrabee	Dem.	79,070
	———— Robinson	Rep.	73,867
12.	———— Ludlow	Dem.	80,954
	———— Collins	Rep.	72,174

KENTUCKY

U. S. Senator

	Albert B. Chandler	Dem.	561,161
	Walter B. Smith	Rep.	401,812

Representatives in Congress

1.	Noble J. Gregory	Dem.	60,777
2.	B. M. Vincent	Dem.	69,905
3.	Emmett O'Neal	Dem.	96,253
	Ben J. Brumleve	Rep.	64,053
4.	Edward W. Creal	Dem.	55,561
	Lewis H. Mather	Rep.	39,447
5.	Brent Spence	Dem.	51,954
	Henry J. Cook	Rep.	32,981

KENTUCKY (*Continued*)

Representatives in Congress

6.	Virgil Chapman	Dem.	74,463
	William D. Rogers	Rep.	48,700
7.	A. J. May	Dem.	44,185
	James W. Turner	Rep.	33,574
8.	Joe B. Bates	Dem.	61,881
	H. C. Hayes	Rep.	44,736
9.	John M. Robinson	Rep.	69,415
	Bert Rowland	Dem.	43,013

LOUISIANA

Representatives in Congress

1.	F. Edw. Hebert	Dem.	58,234
2.	T. Hale Boggs	Dem.	56,026
3.	James Domengeaux	Dem.	27,081
	David W. Pipes	Rep.	13,933
4.	Overton Brooks	Dem.	33,704
5.	Newt V. Mills	Dem.	33,462
6.	J. Y. Sanders, Jr.	Dem.	41,173
7.	Vance Plauche	Dem.	28,518
8.	A. Leonard Allen	Dem.	28,904

MAINE

Governor

Sumner Sewall	Rep.	162,719
Fulton J. Redman	Dem.	92,003

U. S. Senator

Ralph O. Brewster	Rep.	150,149
Louis J. Brann	Dem.	105,740

Representatives in Congress

1.	James C. Oliver	Rep.	55,503
	Peter M. MacDonald	Dem.	32,018
2.	Margaret Chase Smith	Rep.	57,152
	Edward J. Beauchamp	Dem.	31,334
3.	Frank Fellows	Rep.	46,732
	Thomas N. Curran	Dem.	23,934

MARYLAND

U. S. Senator

George L. Radcliffe	Dem.	394,239
Harry W. Nice	Rep.	203,912
Edwin B. Abbott	Soc.	4,204
David L. Elliott	Ind.	3,423
Robert Kadish	Labor	1,848
Albert E. Blumberg	Com.	1,349

Representatives in Congress

1.	David J. Ward	Dem.	36,057
	Robert F. Duer	Rep.	30,810
2.	William P. Cole, Jr.	Dem.	113,495
	Theodore F. Brown	Rep.	59,223
3.	Thomas D'Alesandro, Jr.	Dem.	38,540
	John A. Janetzke	Rep.	24,153
4.	John A. Meyer	Dem.	50,120
	Daniel J. Ellison	Rep.	38,444
5.	Lansdale G. Sasscer	Dem.	58,418
	John N. Torvestad	Rep.	23,857
6.	William D. Byron	Dem.	60,037
	Walter P. Johnson	Rep.	52,258

MASSACHUSETTS

Governor

Leverett Saltonstall	Rep.	999,864
Paul A. Dever	Dem.	992,414
Otis R. Hood	Com.	5,608
J. W. Campbell	Soc.	4,596
H. A. Blomen	Soc., Lab.	3,397
E. T. Root	Prohib.	2,937

MASSACHUSETTS (*Continued*)

U. S. Senator

David I. Walsh	Dem.	1,088,838
Henry Parkman, Jr.	Rep.	838,122
G. L. Thompson	Prohib.	9,632
Philip Frankfeld	Com.	9,465
G. L. Paine	Soc.	6,876
H. I. Hillis	Soc.; Lab.	4,133

Representatives in Congress

1.	Allen T. Treadway	Rep.	72,750
	Clifford J. Akey	Dem.	54,634
2.	Charles R. Clason	Rep.	76,373
	Patrick A. Doyle	Dem.	54,428
3.	Joseph E. Casey	Dem.	72,839
	Edward T. Simoneau	Rep.	60,676
4.	Pehr G. Holmes	Rep.	70,542
	Frank J. McGrail	Dem.	60,988
5.	Edith Nourse Rogers	Rep.	120,435
	Francis J. Roane	Dem.	37,593
6.	George J. Bates	Rep.	88,834
	James D. Burns	Dem.	35,214
7.	Lawrence J. Connery	Dem.	89,966
	William H. Haskell	Rep.	52,701
8.	Arthur D. Healey	Dem.	71,127
	John J. Irwin	Rep.	57,217
9.	Thomas H. Eliot	Dem.	81,523
	Robert Luce	Rep.	74,922
10.	George H. Tinkham	Rep.	78,029
	David M. Owens	Dem.	54,093
11.	Thomas A. Flaherty	Dem.	68,041
	Benjamin J. Green	Rep.	13,176
12.	John W. McCormack	Dem.	97,588
	Henry J. Allen	Rep.	27,302
13.	Richard B. Trigglesworth	Rep.	92,651
	Francis G. O'Neill	Dem.	48,606
14.	Joseph William Martin, Jr.	Rep.	65,780
	Harold E. Cole	Dem.	55,241
15.	Charles L. Clifford	Rep.	73,358
	George F. Backus	Dem.	53,581

MICHIGAN

Governor

Murray D. Van Wagoner	Dem.	1,077,065
Luren D. Dickinson	Rep.	945,784
Seth Whitmore	Soc.	4,124
Phillip Raymond	Com.	2,387

U. S. Senator

Arthur H. Vandenberg	Rep.	1,053,104
Frank Fitzgerald	Dem.	939,740
Nahum Burnett	Soc.	3,580
Elmer Johnson	Com.	2,290

Representatives in Congress

1.	Rudolph G. Tenerowicz	Dem.	87,841
	Donald Marshall	Rep.	21,399
2.	Earl C. Michener	Rep.	72,235
	Redmond M. Burr	Dem.	43,733
3.	Paul W. Shafer	Rep.	74,614
	Charles T. McSherry	Dem.	45,138
4.	Clare E. Hoffman	Rep.	65,666
	Harvey H. Jarvis	Dem.	40,443
5.	Bartel J. Jonkman	Rep.	65,240
	Garrett Heyns	Dem.	56,172
6.	William W. Blanckney	Rep.	77,340
	Charles R. Adair	Dem.	73,629
7.	Jesse P. Wolcott	Rep.	73,926
	Albert A. Wagner	Dem.	39,416
8.	Fred L. Crawford	Rep.	68,265
	Louis C. Schwinger	Dem.	43,297
9.	Albert J. Engel	Rep.	52,343
	Noel P. Fox	Dem.	39,667
10.	Roy O. Woodruff	Rep.	52,685
	Wm. J. Kelly	Dem.	32,289

MICHIGAN (*Continued*)

Representatives in Congress

11.	Fred Bradley	Rep.	48,087
	Wendell L. Lund	Dem.	45,826
12.	Frank E. Hook	Dem.	47,429
	John B. Bennett	Rep.	44,733
13.	George D. O'Brien	Dem.	66,985
	Clarence J. McLeod	Rep.	55,115
14.	Louis C. Rabout	Dem.	80,463
	George B. Schaeffer	Rep.	55,910
15.	John D. Dingell	Dem.	85,239
	Archie C. Fraser	Rep.	52,131
16.	John Lesinski	Dem.	73,956
	Robert Ford	Rep.	51,276
17.	George A. Dondero	Rep.	82,809
	Draper Allen	Dem.	68,195

MINNESOTA

Governor

Harold E. Stassen	Rep.	654,686
Hjalmar Petersen	Farmer-Labor	459,609
Ed Murphy	Dem.	140,021
John W. Castle	Ind.	3,175
Martin Mackie	Com.	360

U. S. Senator

Henrik Shipstead	Rep.	641,049
Elmer A. Benson	Farmer-Labor	310,875
John E. Regan	Dem.	248,658
Grace H. Carlson	Anti-War	8,761

Representatives in Congress

1.	August H. Andresen	Rep.	88,814
	Francis L. Murphy	Dem.	27,479
	Endre B. Anderson	Farmer-Labor	20,700
2.	Joseph P. O'Hara	Rep.	66,610
	Elmer J. Ryan	Dem.	57,673
	C. E. McNaught	Farmer-Labor	11,534
3.	Richard P. Gale	Rep.	63,854
	Henry G. Teigan	Farmer-Labor	50,222
	Martin A. Hogan	Dem.	28,321
	John G. Alexander		4,488
4.	Melvin J. Maas	Rep.	68,525
	George L. Siegel	Farmer-Labor	32,898
	William J. Moran	Dem.	15,050
5.	Oscar Youngdahl	Rep.	79,491
	Dewey Johnson	Farmer-Labor	52,289
	LaMoine M. Dowling	Dem.	20,720
6.	Harold Knutson	Rep.	84,023
	E. Thomas O'Brien	Dem.	52,504
7.	H. Carl Andersen	Rep.	65,958
	Harold L. Peterson	Farmer-Labor	42,356
	J. L. O'Connor	Dem.	21,796
8.	William A. Pittinger	Rep.	74,521
	John T. Bernard	Farmer-Labor	39,252
	M. W. Raihala	Dem.	23,845
9.	Richard T. Buckler	Farmer-Labor	48,999
	Colvin G. Butler	Rep.	48,324
	Frank H. Timm	Dem.	15,507

MISSISSIPPI

U. S. Senator

Theo. G. Bilbo	Dem.	143,333

Representatives in Congress

1.	John E. Rankin	Dem.	19,330
2.	Wall Doxey	Dem.	16,939
3.	W. M. Whittington	Dem.	16,597
4.	A. L. Ford	Dem.	15,329
5.	Rose A. Collins	Dem.	24,079
6.	W. M. Colmer	Dem.	26,879
7.	D. R. McGehee	Dem.	29,799

MISSOURI

Governor

Forrest C. Donnell	Rep.	911,530
Lawrence McDaniel	Dem.	907,917
Jed A. High	Soc.	1,555

U. S. Senator

Harry S. Truman	Dem.	930,775
Manvel H. Davis	Rep.	886,376
W. F. Rinck	Soc.	1,669

Representatives in Congress

1.	M. A. Romjue	Dem.	62,461
	Henry S. Beardsley	Rep.	61,123
2.	William L. Nelson	Dem.	77,922
	Roy D. Miller	Rep.	66,794
3.	Richard M. Duncan	Dem.	77,424
	Fred Maughmer	Rep.	67,757
4.	C. Jasper Bell	Dem.	72,331
	John W. Mitchell	Rep.	48,181
5.	Joseph B. Shannon	Dem.	63,202
	Forest W. Hanna	Rep.	53,390
6.	Phil A. Bennett	Rep.	78,746
	Reuben T. Wood	Dem.	67,902
7.	Dewey Short	Rep.	86,547
	Vernon Sigars	Dem.	59,344
8.	Clyde Williams	Dem.	64,263
	Parke M. Banta	Rep.	61,567
9.	Clarence Cannon	Dem.	60,204
	F. B. Meyer	Rep.	48,704
10.	Orville Zimmerman	Dem.	69,859
	C. E. Davenport	Rep.	51,755
11.	John B. Sullivan	Dem.	85,722
	Charles J. Riley	Rep.	68,088
12.	Walter Ploeser	Rep.	127,005
	C. Arthur Anderson	Dem.	108,605
13.	John J. Cochran	Dem.	82,417
	W. S. Sanford	Rep.	45,262

MONTANA

Governor

Sam C. Ford	Rep.	124,435
Roy E. Ayers	Dem.	119,453
Arvo Frederickson	Com.	1,713

U. S. Senator

Burton K. Wheeler	Dem.	176,753
E. K. Cheadle	Rep.	63,941

Representatives in Congress

1.	Jeannette Rankin	Rep.	56,616
	Jerry J. O'Connell	Dem.	47,352
2.	James F. O'Connor	Dem.	83,101
	Melvin N. Hoiness	Rep.	49,710
	Leverne Hamilton	Soc.	1,196

NEVADA

U. S. Senator

Key Pittman	Dem.	31,351
Samuel Platt	Rep.	20,488

Note: Senator Pittman died November 10. Governor Carville appointed Berkeley L. Bunker to serve till Jan. 3, 1941.

Representatives in Congress

James G. Scrugham	Dem.	32,714
Ralph W. Lattin	Rep.	18,032

NEW HAMPSHIRE

Governor

Robert O. Blood	Rep.	112,186
F. Clyde Keefe	Dem.	109,093

Representatives in Congress

1.	Arthur B. Jenks	Rep.	57,982
	Alphonse Roy	Dem.	55,434
2.	Foster Stearns	Rep.	55,530
	Daniel J. Moriarty	Dem.	49,260

OTHER ELECTIONS OF 1940

NEW JERSEY

Governor

Chas. Edison	Dem.	984,407
Robert C. Hendrickson	Rep.	920,512

U. S. Senator

W. Warren Barbour	Rep.	1,029,331
Jas. H. R. Cromwell	Dem.	823,893
McAlister Coleman	Soc.	8,836
Jas. A. Turnulty	Ind.	2,784
Mary Ellen Dooner	Com.	1,519

Representatives in Congress

1.	Charles A. Wolverton	Rep.	97,547
	Harry Roye	Dem.	77,931
2.	Elmer H. Wene	Dem.	60,392
	Walter S. Jeffries	Rep.	55,382
3.	William H. Sutphin	Dem.	76,048
	Joseph C. Irwin	Rep.	70,890
4.	D. Lane Powers	Rep.	69,834
	Thomas S. Dignan	Dem.	54,909
5.	Charles A. Eaton	Rep.	82,840
	Charles R. M. Tuttle	Dem.	65,200
6.	Donald H. McLean	Rep.	78,361
	James E. Downes	Dem.	62,888
7.	J. Parnell Thomas	Rep.	82,287
	Mort L. O'Connell	Dem.	44,527
8.	Gordon Canfield	Rep.	72,197
	Addison P. Rosentrans	Dem.	50,622
9.	Frank C. Osmers, Jr.	Rep.	91,352
	Abram A. Lebson	Dem.	54,254
10.	Fred A. Hartley, Jr.	Rep.	64,699
	William E. Holmwood	Dem.	46,934
11.	Albert L. Vreeland	Rep.	61,606
	Mary C. Duffy	Dem.	46,130
12.	Robert Winthrop Kean	Rep.	67,996
	Thomas J. Holleran	Dem.	53,677
13.	Mary T. Norton	Dem.	92,356
	Raymond J. Cuddy	Rep.	39,274
14.	Edward J. Hart	Dem.	84,538
	Otto Trankler	Rep.	44,893

NEW MEXICO

Governor

John E. Miles	Dem.	103,035
Maurice Miera	Rep.	82,306

U. S. Senator

Dennis Chanes	Dem.	103,194
Albert K. Mitchell	Rep.	81,257

Representatives in Congress

Clinton P. Anderson	Dem.	106,972
Herman R. Critte	Rep.	75,085

NEW YORK

U. S. Senator

James M. Mead	Dem.; Am. Lab.	3,274,766
Bruce Barton	Rep.	2,868,852
Stephen W. Paine	Prohib.	4,944

Representatives in Congress

At Large (two to elect)

Caroline O'Day	Dem.; Am. Lab.	3,199,019
Matthew J. Merritt	Dem.; Am. Lab.	3,182,936
Mary Donlon	Rep.	2,830,517
Messmore Kendall	Rep.	2,812,066
Helen G. Estelle	Prohib.	5,679
Neil Dow Cranmer	Prohib.	5,212

NORTH DAKOTA

Governor

John Moses	Dem.	173,278
Jack A. Pattison	Rep.	101,287

NORTH DAKOTA (*Continued*)

U. S. Senator

William Langer	Rep.	100,647
Charles J. Vogel	Dem.	69,847
William Lemke	Ind.	92,593
Jasper Haaland	Ind.	1,014

Representatives in Congress

(two elected at large)

Usher L. Burdick	Rep.	148,227
Charles R. Robertson	Rep.	111,125
R. J. Downey	Dem.	63,662
Adolph Michelson	Dem.	63,027
Thomas Hall	Ind.	23,399
John Ornland	Ind.	20,845

OHIO

Governor

John W. Bricker	Rep.	1,825,312
Martin L. Davey	Dem.	1,460,653

U. S. Senator

Harold H. Burton	Rep.	1,602,498
John McSweeney	Dem.	1,457,304

Representatives in Congress

At large (two to elect)

George H. Bender	Rep.	1,519,559
Stephen M. Young	Dem.	1,483,879
L. L. Marshall	Rep.	1,386,627
Francis W. Durbin	Dem.	1,384,745
Charles H. Elston	Rep.	84,622
Joseph A. Dixon	Dem.	61,382
Wm. E. Hess	Rep.	77,769
James E. O'Connell	Dem.	60,410
Greg. Holbrock	Dem.	103,291
Harry N. Routzohn	Rep.	93,002
Robert F. Jones	Rep.	65,534
Clarence C. Miller	Dem.	47,765
Cliff Clevenger	Rep.	48,040
C. H. Armbruster	Dem.	31,063
Jacob E. Davis	Dem.	52,769
Chester P. Fitch	Rep.	48,257
Clarence J. Brown	Rep.	83,415
J. Fuller Trump	Dem.	59,667
Frederick C. Smith	Rep.	49,218
Kenneth M. Petri	Dem.	44,605
John F. Hunter	Dem.	86,956
Wilbur M. White	Rep.	71,927
Thomas A. Jenkins	Rep.	48,217
John P. Kelso	Dem.	33,698
Harold K. Claypool	Dem.	43,548
Ray W. Davis	Rep.	37,398
John M. Vorys	Rep.	91,767
A. P. Lamneck	Dem.	87,115
A. D. Baumhart, Jr.	Rep.	62,442
Werner S. Haslinger	Dem.	40,274
Dow W. Harter	Dem.	121,037
Walter E. Wanamaker	Rep.	108,016
Cornelius Kohlmyer	Ind.	2,527
Robert T. Secrest	Dem.	57,359
Clair A. Young	Rep.	40,233
William R. Thorn	Dem.	92,469
Jim Seccombe	Rep.	71,629
J. Harry McGregor	Rep.	69,102
Ralph C. Lutz	Dem.	56,343
Lawrence E. Imhoff	Dem.	79,718
Earl R. Lewis	Rep.	66,666
Michall J. Kirwan	Dem.	122,075
Charles H. Anderson	Rep.	75,016
Martin L. Sweeney	Dem.	72,385
George Pillersdorf	Rep.	34,609
Robert Crosser	Dem.	79,602
J. E. Chizek	Rep.	23,658
Frances P. Bolton	Rep.	165,322
Anthony A. Fieger	Dem.	126,273

OTHER ELECTIONS OF 1940

OREGON

Representatives in Congress

James W. Mott	Rep.	145,675
Charles A. Robertson	Dem.	63,940
Upton A. Upton	Soc.-Lab.	3,524
Walter M. Pierce	Dem.	44,832
Rex Ellis	Rep.	33,529
Pauline Sears	Soc.-Lab.	1,344
Homer D. Angell	Rep.	84,275
Nan Wood Honeyman	Dem.	80,930
H. H. Stallard	Ind.	2,642
Lester E. Harnden	Soc.-Labor	1,207

SOUTH CAROLINA

Representatives in Congress

L. Mendel Rivers	Dem.	16,626
H. P. Fulmer	Dem.	14,920
Butler B. Hare	Dem.	15,977
Jos. R. Bryson	Dem.	23,825
J. P. Richards	Dem.	14,754
Jno. L. McMillan	Dem.	12,074
C. B. Ruffin		123

SOUTH DAKOTA

Governor

Harlan J. Bushfield	Rep.	167,686
Lewis W. Bicknell	Dem.	136,428

Representatives in Congress

1. Karl Mundt	Rep.	135,406
Oscar Fosheim	Dem.	91,967
2. Francis Case	Rep.	47,051
Arthur W. Watwood	Dem.	24,127

TENNESSEE

Governor

Prentice Cooper	Dem.	323,466
C. Arthur Bruce	Rep.	125,254

U. S. Senator

Kenneth D. McKellar	Dem.	295,440
Howard Baker	Rep.	121,790

Representatives in Congress

B. Carroll Reece	Rep.	39,577
R. E. Walker	Dem.	18,051
John Jennings, Jr.	Rep.	41,274
Clay James	Dem.	31,663
Estes Kefauver	Dem.	35,332
Jerome Taylor	Rep.	16,099
Albert Gore	Dem.	38,278
H. E. McLean	Rep.	4,777
J. Percy Priest	Ind.	24,565
Joseph W. Byrns, Jr.	Dem.	20,933
Juliant H. Campbell	Rep.	3,459
Wirt Courtney	Dem.	24,536
Herron Pearson	Dem.	25,590
Jere Cooper	Dem.	32,002
Julian Palmer	Rep.	2,760
Clifford Davis	Dem.	55,952
Theo W. Larwill	Rep.	2,309

TEXAS

Governor

W. Lee O'Daniel	Dem.	Elected

U. S. Senator

Tom Conally	Dem.	978,095
Homer Brooks	Rep.	59,340

Representatives in Congress

Wright Patman	Dem.	27,030
Martin Dies	Dem.	43,597
Lindley Beckworth	Dem.	43,139
Sam Rayburn	Dem.	46,333

TEXAS (*Continued*)

Representatives in Congress

Hatton Summers	Dem.	57,789
Floyd W. Hayes	Rep.	8,273
Luther Johnson	Dem.	33,546
Pat Patton	Dem.	30,385
Dudley Lawson	Rep.	565
Albert Thomas	Dem.	89,796
U. S. Kjorlang	Rep.	4,525
J. J. Mansfield	Dem.	52,754
Lyndon B. Johnson	Dem.	48,442
W. R. Poage	Dem.	37,227
Fritz Lanham	Dem.	54,108
Ed Dossett	Dem.	50,076
Louis Gould	Rep.	1,894
Richard Deberg	Dem.	59,009
Milton West	Dem.	31,800
J. A. Simpon	Rep.	2,628
R. N. Thomason	Dem.	34,516
Sam Russell	Dem.	45,456
Eugene Worley	Dem.	51,015
John Beveridger	Rep.	1,858
Geo. Mahan	Dem.	53,510
Paul J. Kilday	Dem.	47,075
Harry Hotchkiss	Rep.	9,296
L. South	Dem.	49,468
Ray Ridenhour	Rep.	3,832

UTAH

Governor

Herbert B. Man	Dem.	128,519
Don B. Colton	Rep.	117,713

U. S. Senator

Abe Murdock	Dem.	155,499
Philo T. Farnsworth, Jr.	Rep.	91,931

Representatives in Congress

Walter K. Granger	Dem.	62,654
LeRoy B. Young	Rep.	47,021
J. W. Robinson	Dem.	86,874
A. Sherman Christensen	Rep.	50,332

VERMONT

Governor

William H. Willis	Rep.	87,346
John McGrath	Dem.	49,068

U. S. Senator (unexpired term)

George D. Aiken	Rep.	87,150
Herbert B. Comings	Dem.	54,263

U. S. Senator (full term)

Warren R. Austin	Rep.	93,283
Ona S. Searles	Dem.	47,101

Representatives in Congress

Charles A. Plumley	Rep.	89,637
Michael J. Rock	Dem.	50,804

VIRGINIA

U. S. Senator

Harry F. Byrd	Dem.	274,260
Hilliard Bernstein		11,159
Alice Burke		8,250

Representatives in Congress

S. Otis Bland	22,493
Colgate W. Darden, Jr.	29,788
Dave E. Scatterfield, Jr.	34,855
Winston Dawson	1,126
P. H. Drewry	19,043
Cyrus Hotchkiss	788
T. G. Burch	25,631
Clifton A. Woodrum	30,046
Fred W. McWane	13,864

VIRGINIA (*Continued*)

Representatives in Congress

A. Willis Robertson	26,233
J. A. Garber	13,964
Howard W. Smith	33,031
Henry B. Goodloe	8,794
John W. Flannagan, Jr.	32,412
Fred C. Parks	24,109

WASHINGTON

Governor

Arthur B. Langlie	Rep.	392,522
C. C. Dill	Dem.	386,706

U. S. Senator

Mon C. Wallgren	Dem.	404,718
Stephen Chadwick	Rep.	342,589

Representatives in Congress

Warren G. Magnuson	Dem.	113,988
Fred J. Wettrick	Rep.	71,110
Henry M. Jackson	Dem.	66,314
Payson Peterson	Rep.	49,209
Martin F. Smith	Dem.	60,529
Russell V. Mack	Rep.	48,700
Knute Hill	Dem.	50,493
Frank Miller	Rep.	48,003
Charles H. Leavy	Dem.	67,582
Walt Horan	Rep.	54,258
John M. Coffee	Dem.	71,536
Paul A. Preus	Rep.	42,334
John Brockaway	Com.	1,674

WEST VIRGINIA

Governor

Matthew M. Neely	Dem.	496,028
Daniel Boone Dawson	Rep.	383,698

U. S. Senator

Harley M. Kilgore	Dem.	492,413
Thomas Sweeney	Rep.	381,806

Representatives in Congress

Robert L. Ramsay	Dem.	72,717
A. C. Schiffler	Rep.	63,906
Jennings Randolph	Dem.	77,045
Summers H. Sharp	Rep.	56,911
Andrew Edmiston	Dem.	79,441
H. Roy Waugh	Rep.	60,810
George W. Johnson	Dem.	82,979
Harry O. Hiteshew	Rep.	74,491
John Kee	Dem.	81,903
Hartley Sanders	Rep.	48,223
Joe L. Smith	Dem.	105,927
R. E. O'Connor	Rep.	65,762

WISCONSIN

Governor

Julius P. Heil	Rep.	558,678
Orland S. Loomis	Prog.	546,436
Francis E. McGovern	Dem.	264,985
Fred B. Blair	Ind.; Com.	2,340
Louis Fisher	Ind.; Soc.; Lab.	1,158

U. S. Senator

Robert M. LaFollette, Jr.	Prog.	605,609
Fred H. Clausen	Rep.	553,692
James E. Finnegan	Dem.	176,688

Representatives in Congress

1.	Stephen Bolles	Rep.	69,276
	Stanley W. Slagg	Prog.	28,308
	Jacob M. Weisman	Dem.	26,520
2.	Harry Southoff	Prog.	60,481
	Charles Hawks	Rep.	58,121
	Thomas Brooks	Dem.	18,237

WISCONSIN (*Continued*)

Representatives in Congress

3.	William H. Stevenson	Rep.	54,457
	Gardner R. Withrow	Prog.	52,131
	George T. Doherty	Dem.	11,806
4.	Thaddeus F. B. Wasielewski	Dem.	57,381
	Leonard C. Fous	Prog.	52,907
	John C. Schafer	Rep.	50,796
5.	Lewis D. Thill	Rep.	73,728
	James M. Pasch	Prog.	54,501
	Francis T. Murphy	Dem.	37,872
6.	Frank B. Keefe	Rep.	66,821
	Jacob A. Fessler	Dem.	30,162
	Walter D. Corrigan, Sr.	Prog.	19,387
7.	Reid F. Murray	Rep.	58,696
	Gerald J. Boileau	Prog.	40,558
	Wallace A. Bloedorn	Dem.	14,495
8.	Joshua L. Johns	Rep.	61,987
	Michael F. Kresky	Prog.	49,005
9.	Merlin Hull	Prog.	61,009
	John R. Nygaard	Rep.	47,825
	James E. Hughes	Dem.	6,763
10.	Bernard J. Gehrmann	Prog.	50,776
	Peter Van Nostrand	Rep.	37,819
	John G. Green	Dem.	17,284

WYOMING

U. S. Senator

Joseph C. O'Mahoney	Dem.	65,022
———— Simpson	Rep.	45,682

Representative in Congress

———— McIntyre	Dem.	57,030
———— Horton	Rep.	49,701

CHRONOLOGY OF PUBLIC EVENTS, 1940

(From *The New York Times*)

JANUARY

3—Seventy-sixth Congress convenes. President heavily increased defense program; budget of $8,424,000,000; re-enactment of Reciprocal Trade Agreements Act.

4—Attorney General Frank Murphy named to Supreme Court; Robert Jackson named Attorney General.

FEBRUARY

20—Sam Houston Jones defeats Governor Earl K. Long in Louisiana primaries, ousting old Huey P. Long machine.

MARCH

2—President signs bill increasing lending authority of Export-Import Bank by $100,000,000 and providing for $20,000,000 loan to Finland.

17—District Attorney William O'Dwyer reveals operation of Brooklyn crime syndicate which committed wholesale murder by contract.

APRIL

2—Decennial census begins of America's 131 millions.

5—Senate adopts House-approved measure extending Reciprocal Trade Agreements Act three more years.

MAY

16—President asks Congress for an air force of 50,000 war planes and for a $1,182,000,000 appropriation for Army and Navy.

28—President names National Defense Advisory Commission of seven to coordinate industry, finance, labor and consumer.

JUNE

20—President nominates Frank Knox and Henry L. Stimson, Republicans, to be Secretary of the Navy and Secretary of War, respectively. Bill for conscription introduced by Senator Burke.

22—Congress passes National Defense Tax Bill to yield $994,300,000 a year and raises national debt limit from $45,000,000,000 to $49,000,000,000.

25—President signs $918,603,000 Agricultural Appropriation Bill.

27—President signs $1,768,913,908 supplemental defense appropriation.

28—Wendell L. Willkie nominated for Presidency on sixth ballot at Republican Convention in Philadelphia.

JULY

10—President in special message to Congress asks $4,800,000,000 program for defense expansion.

17—President Roosevelt renominated on first ballot at Democratic Convention in Chicago.

20—President signs Hatch "Clean State Politics" Bill.

AUGUST

23—Congress passes bill authorizing President to call out National Guard and organized reserves.

27—Alien registration begins.

31—President Roosevelt appoints Frank C. Walker to succeed James A. Farley as Postmaster General.

SEPTEMBER

3—President informs Congress that fifty over-age American destroyers will be traded for bases on British New World territory.

6—Congress completes action on "Total Defense" Bill carrying appropriations of $5,246,000,000.

14—Congress passes Burke-Wadsworth Selective Service Bill.

15—Speaker William P. Bankhead dies.

26—President embargoes exports of scrap iron and steel.

OCTOBER

1—Congress passes billion-dollar Excess Profits Tax and Amortization Bill.

16—16,400,000 men register for selective service.

24—Forty-hour week goes into effect.

27—New York's World's Fair closes.

29—Draft lottery begins; first number is 158.

NOVEMBER

5—49,818,995 vote in national election; 27,245,422 ballots re-elect President Roosevelt for a third term; Henry A. Wallace elected Vice President; Democrats increase control of House.

10—Senator Key Pittman dies.

15—President names Harry A. Millis to succeed J. Warren Madden as NLRB head.

21—Philip Murray elected president of C. I. O. as John L. Lewis steps down.

DECEMBER

1—Joseph P. Kennedy resigns as Ambassador to Great Britain.

17—President proposes to lend armaments to Britain.

20—President names four-man super defense board, headed by William S. Knudsen, to speed up defense program and aid to Britain.

26—Registration completed of almost 5,000,000 aliens in the United States.

PERIODICAL PUBLICATIONS

American Mercury
570 Lexington Ave., New York City.

American Political Science Review
Menasha, Wis.

American Spectator
683 Broadway, New York City.

Commonweal
386 Fourth Ave., New York City.

Congressional Digest
2131 LeRoy Place N.W., Washington, D.C.
Current History and Forum
366 Madison Ave., New York City.
Events
1133 Broadway, New York City.
Journal of Political Economy
5750 Ellis Ave., Chicago.
Nation
55 Fifth Ave., New York City.
New Republic
40 East 49th Street, New York City.
News-Week
1270 Sixth Ave., New York City.
Political Science Quarterly
Columbia University, New York City.
Time Weekly Newsmagazine (The)
9 Rockefeller Plaza, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

American Antiquarian Society, Worcester, Mass.
American Baptist Historical Society, Upland Avenue, Chester, Pa.
American Catholic Historical Association, Catholic University, Brookland Station, Washington, D.C.
American Historical Assn., 740 Fifteenth St., N.W., Washington, D.C.
American Irish Historical Society, 991 Fifth Ave., New York City.
American Jewish Historical Society, 3080 Broadway, New York City.
American Numismatic Society, 156th Street at Broadway, New York City.
American Scenic and Historic Preservation Society, 287 Convent Avenue, New York City.
American Society of Church History, 5757 University Ave., Chicago, Ill.
Canadian Historical Assn., Ottawa, Canada.
Freethinkers of America Inc., 317 East 34th Street, New York City.
Hispanic Society of America, Broadway between 155th and 156th St., New York City.
Holland Society of New York, 90 West Street, New York City.
Huguenot Society of America, 122 East 58th Street, New York City.
Methodist Historical Society, 150 Fifth Ave., New York City.
Mississippi Valley Historical Assn., Cedar Rapids, Iowa.
New England Historic Genealogical Society, 9 Ashburton Place, Boston, Mass.
Presbyterian Historical Society, 520 Witherspoon Building, Philadelphia, Pa.
Proportional Representation League, 309 East 34th Street, New York City.
Society for the Preservation of New England Antiquities, 141 Cambridge St., Boston, Mass.
Steuben Society of America, 369 Lexington Ave., New York City.
Thomas Paine National Historical Assn., North Ave., New Rochelle, N.Y.
United States Catholic Historical Society, 346 Convent Ave., New York City.
Woodrow Wilson Foundation, 8 West 40th Street, New York City.

POLITICAL

Academy of Political Science, Morningside Hghts., New York City.
American Academy of Political and Social Science, 3457 Walnut St., Philadelphia, Pa.
American Political Science Assn., 305 Harris Hall, Northwestern University, Evanston, Ill.
League for Industrial Democracy, 112 E. 19th Street, New York City.

National League of Women Voters, 726 Jackson Place, Washington, D.C.

National Municipal League, 299 Broadway, New York City.

Women's National Democratic Club Inc., 50 West 45th St., New York City.

Women's National Republican Club, 3 West 51st Street, New York City.

DIVISION II

INTERNATIONAL AFFAIRS AFFECTING THE UNITED STATES

THE UNITED STATES AND EUROPE

By David H. Popper
Foreign Policy Association

EVOLUTION OF AMERICA'S WAR ATTITUDE

The catastrophic events of the year 1940, Germany's year of triumph under Adolf Hitler and his Nazi legions, did not completely break down the resistance of the American people to involvement in the European war, but they did give rise to a profound shift in the American attitude toward the belligerent nations. In general, this country had been sympathetic to the Allies from the outset of hostilities. American sympathy, however, had been passive rather than active in its manifestations; it had sanctioned amendment of the Neutrality Act to permit Allied purchases of munitions on a cash-and-carry basis, but had refrained from positive and straightforward assistance to the democratic nations. Since an ultimate Anglo-French victory had seemed assured, there appeared to be no need to depart from the general principles of neutrality as established by international law. But after the start of the *blitzkrieg* in Western Europe, on May 10, the United States passed swiftly into the newly recognized status of a non-belligerent. By the end of the year, it was debating the adoption of measures for the support of Britain which in an earlier era would have been tantamount to participation in the conflict.

The tenor of opinion in January, 1940 was illustrated by the restraint noticeable in President Roosevelt's opening message to Congress on Jan. 3. The President voiced his conviction that "ostrich" isolation was impossible and asserted that the domination of concentrated military force abroad would gravely affect American economic activity and cultural stability. It was in America's interest, he declared, that foreign forms of government "be predicated on certain freedoms which we think are essential everywhere." Nevertheless, there was no direct reference to specific foreign countries, and Mr. Roosevelt emphatically expressed the nation's "hope and expectation that the United States will not become involved in military participation in the war."

TREATMENT OF UNITED STATES MAILS

Beginning in the autumn of 1939, the United States, as a neutral, became involved in a number of disputes with the British over its right to trade and communicate with Germany and neutral powers affected by the blockade. The diplomatic debate, reminiscent of the controversies stirred up during the first World War, was centered on four principal issues.

On Jan. 2, 1940 the State Department published a protest of Dec. 27, citing a number of cases in which British authorities had removed and censored sealed letters carried on British and neutral ships and addressed to neutral countries. The American note admitted the right of the British to censor private mails destined to or normally passing through the United Kingdom, but requested observance of the eleventh Hague Convention stipulation which guarantees the inviolability of postal correspondence on the high seas. In a reply published Jan. 21, the British upheld a belligerent's right to open mail in order to ascertain whether it contained contraband such as securities, checks, or industrial diamonds, a view which had been stated by the American Secretary of State Robert Lansing on May 24, 1916 during a similar controversy with the Foreign Office. Another complicating factor was injected into the situation on Jan. 18, when the British commenced to censor trans-Atlantic air mails at Bermuda. Since this was British territory, the State Department did not lodge a protest, but it was decided to omit the Bermuda stop whenever conditions permitted.

SEARCH OF UNITED STATES SHIPS

Between Nov. 20, 1939 and Jan. 20, 1940 the United States made several protests to the British over interference with American shipping *en route* to or returning from neutral European ports whence cargo might be transshipped to Germany. In some cases, American vessels were forced to proceed to "contraband control bases" within the combat areas from which American ships were barred by our Neutrality Act; in others, it was observed that Italian vessels received more expeditious treatment than American merchantmen. By March 15, 1940, according to State Department records, 128 cases of the detention of American ships were on record. There was no public reply to American protests on this point; and with the gradual adoption of the British "navicert" system, friction between the two countries diminished.

BRITISH BLOCKADE OF GERMAN EXPORTS

The United States also made representations over the virtually complete interruption of exports from Germany to this country, which is not sanctioned under the classical precepts of international law. American importers desired specific assurances that certain special items not procurable elsewhere and sometimes essential to the operations of various American industries would be available. The British, it was revealed on Jan. 4, refused to state in advance just what exceptions they would make to the general prohibition against such trade.

RESPECT FOR PAN AMERICAN NEUTRALITY ZONE

In a note of Jan. 16, 1940 Britain refused to refrain from hostilities in the Pan American neutrality zone, as requested by the American republics, unless and until German war vessels and supply ships were prevented from using the zone as a sanctuary. Other conditions were also laid down which indicated that the British would not agree to limit their activities in the "safety belt" as long as the German flag continued to fly on any shipping in those waters or any aid to Germany was carried out by non-German vessels. In this case, in contrast to the others mentioned above, the British position was supported by international law, under which the seas outside the three-mile limit are regarded as a highway open to all nations. A French response to Panama, which spoke for the 21 American republics, adhered generally to the British position. In February, the German Government formally denied the right of the American republics unilaterally to alter the provisions of international law; pointed out that it was placed at a disadvantage in relation to its enemies by virtue of their territories (British and French) in the Western Hemisphere; and refused to consider barring its warships from any zone into which Allied naval vessels were permitted to penetrate.

Thus the United States gained no satisfaction on any of the four legal controversies in which it was engaged with Britain. In this respect, its experience in 1939-40 paralleled that of 1914-17. On both occasions, many

Americans were irritated by Britain's inclination ruthlessly to subordinate the desires of neutrals, even friendly neutrals, to the exigencies of the war. But on both occasions, too, American irritation was swallowed up by the tide of resentment against German activities much more harmful to neutral interests and by the overwhelming support of the American people for the British cause.

EXPLORING PEACE POSSIBILITIES

The static military situation on the Western front in the early months of the year encouraged hopes in many quarters that a peace settlement might be negotiated. In February and March Sumner Welles, Under Secretary of State, visited Italy, France, Germany, and Great Britain, ostensibly to advise the President on conditions in Europe. Despite all official denials, however, it was widely believed that he had sounded out European statesmen on peace possibilities. If this was the case, his efforts were unsuccessful. Equally fruitless were informal diplomatic conversations with neutral nations initiated simultaneously with the announcement of the Welles mission on Feb. 9, examining the prospects for a sound international economic system and reduction of armaments in relation to a future peace. The disinclination of the United States to assume commitments and accept responsibilities outside its own borders proved an insuperable barrier to world organization, even in limited spheres.

After the return of Mr. Welles, who was widely praised for the manner in which he conducted himself in Europe, President Roosevelt on March 29 admitted that there was scant prospect for the establishment of any just, stable and lasting peace in Europe. On the same day, as if to signalize the end of hopes for a negotiated settlement, the German Foreign Office published a White Paper containing documents said to have been captured in Warsaw. In them William C. Bullitt, Ambassador to France, and Joseph P. Kennedy, Ambassador to Britain, were quoted as pledging support for Britain and France in the event of war. Berlin indicated that the White Paper demonstrated the United States' part in bringing about the conflict. Secretary Hull, however, promptly branded the documents a forgery. A few days earlier he had sharply reprimanded James H. R. Cromwell, newly appointed Minister to Canada, who had outspokenly attacked American isolationists and expressed strong sympathy with the Allies.

AID TO FINLAND

This concern over the preservation of formal neutrality, as regards the major European war, was somewhat less apparent in connection with the Finnish-Soviet strife. On Jan. 16 President Roosevelt suggested to Congress that Finland should be permitted to borrow additional Export-Import Bank funds to supplement the $10,000,000 credit already granted in 1939. Although the Finns were seeking airplanes and munitions, Mr. Roosevelt, mindful of Congress' fear of involvement, specifically stated that the funds should not be used for such articles.

Under his direction, however, the Navy Department did release to the Finns 44 planes nearing completion; the War Department facilitated the efforts of a Finnish military mission here; the State Department broadened the scope of its "moral embargo" against Russia and Japan to include "technical information of strategic importance" relating to aircraft, so that American engineers directing plant operations in Russia for the manufacture of high-test gasoline were withdrawn; and, finally, the Army and Navy Munitions Board warned against continuance of "abnormal" exports of crude rubber and tin to certain European countries, understood to mean Russia. Somewhat later, on Feb. 29, after passage of enabling legislation, the Export-Import Bank announced that it would lend $20,000,000 additional to Finland, as well as $15,-

000,000 to Sweden and $10,000,000 to Norway. By a resolution approved June 15, 1940, Congress permitted Finland to postpone its debt payment due Dec. 15, 1940, an offer of which the Finns took advantage.

REVERBERATIONS OF THE SCANDINAVIAN CAMPAIGN

With the opening of the German campaign in Denmark and Norway on April 9, the American attitude began to swing toward stronger support for the Allies. At the outset the trend was slow. In routine fashion, the Administration on April 10 extended the combat zone from which American shipping and citizens are barred to include Scandinavian waters, held up the transfer of credits granted by the Export-Import Bank to Norway and Denmark, froze the assets of those countries in the United States so that Germany could not profit from them, and arranged for evacuation of American citizens in the war area. Two days later arrangements were concluded for the sale of 2,500 military airplanes to the Allies under contracts stipulating that they were to pay part of the cost of developing new models for the American army. On April 13, moreover, President Roosevelt condemned the invasion of Norway and Denmark as an "unlawful exercise of force" and reiterated the American Government's desire that the rights of small nations should be respected.

On the following day the President informed the representatives of the American Republics in a speech at the Pan American Union that Western Hemisphere solidarity could be maintained only if any one who challenged it by force were met by force. Because the subjugation of Denmark might conceivably facilitate German penetration of the New World *via* Iceland and Greenland, the Administration took steps to establish observation posts on these islands. It was made clear that Greenland was considered Western Hemisphere territory, and the Red Cross was directed to furnish it with essential supplies if —as proved to be the case—communications with Denmark were severed. On May 1 it was announced that an American consulate would be established at Godthaab, Greenland. Consular relations were also established with Iceland at Reykjavik.

BLITZKRIEG IN THE WEST

The scope and tempo of American activity were accelerated as the German army drove into Holland, Belgium, and France. Words were of little use in the crisis, and they were sparingly employed. The agonized appeals for assistance sent to the President by Premier Paul Reynaud of France on and after June 10 could be answered only by expressions of moral support and assurances that all possible material aid would be forthcoming—in due time. Italy's entry into the war at a moment when victory without risk seemed certain, however, provided an occasion too good to be missed. At Charlottesville, on June 10, Mr. Roosevelt excoriated the Italian "hand that held the dagger" and "stuck it into the back of its neighbor." He also expressed in strong terms his belief that American democracy and security were threatened by the advance of totalitarianism abroad —a position which echoed the words of his message to Congress of May 16, demanding tremendous new armament expenditures. The American program for a "two-ocean" navy, 35,000 Army and Navy airplanes, and a gigantic Army of millions trained by conscription was adopted in direct consequence of the peril to which Britain, considered the last bastion of democracy on the European continent, had been subjected since May 1940.

For the same general reason, the Administration's hemisphere defense plans were energetically propounded in both European and American capitals. In a note of June 17, the State Department warned Germany, Italy, Britain, France, and The Netherlands that "the United States would not recognize any transfer and would not acquiesce in any attempt to transfer any geographic region of the Western

Hemisphere from one non-American power to another non-American power." Both Houses of Congress also passed resolutions reaffirming the Monroe Doctrine. Proposals were suggested for "economic defense" of the hemisphere against domination by government-controlled foreign trade authorities in totalitarian countries. In Uruguay, where an alleged Nazi plot to seize control was foiled, the United States Minister, Edwin C. Wilson, announced that the United States would "cooperate fully, whenever such cooperation is desired, with all the other American governments in crushing all activities that arise from non-American sources and that imperil our political and economic freedom." By July 30 the 21 American Republics, meeting at Havana, had agreed on cooperative procedures to maintain the independence and security of the Western Hemisphere. And on Aug. 18 the northern extremity of the hemisphere was linked with the new continental system by a decision of President Roosevelt and Prime Minister Mackenzie King of Canada to establish the Permanent Joint Board of Defense which quickly began to exercise its functions.

AID TO BRITAIN

Meanwhile, the preponderant weight of American opinion had become united in support of the proposition that the United States should extend aid to Britain short of war. Both party platforms and both Presidential candidates adopted this view; all insisted they would avoid war. American policy toward Europe became more and more closely centered about this vital question. This was particularly true after the conclusion on Sept. 27 of a mutual assistance pact between Germany, Italy, and Japan which threatened the United States with a two-front war in Europe and Asia if it intervened directly on either continent.

Support for Britain took various forms, among which were:

1. Shipments from the American reserve stocks of World War equipment to compensate for the munitions lost in the retreat through Dunkerque and to arm Britons against a German invasion. Using the United States Steel Corporation and other private companies as intermediaries, the War Department transferred—mostly in June 1940—970,000 rifles, including 25,000 automatic rifles, 14,500 machine guns, 63,000 anti-aircraft machine guns, 200,500 revolvers, 316 trench mortars, 900 75-mm. field guns, 10,000 Browning (heavy) machine guns, and quantities of ammunition and other material. The equipment was sold, not given away.

2. Sale, through a similar procedure, of about 240 obsolescent Army and Navy planes, principally attack and dive bombers.

3. Facilitation of British aircraft purchases in the American market. At first, the Allies were permitted to take delivery of planes originally ordered for the United States air forces; later, the President announced that under a rule of thumb arrangement the British would receive 50 per cent of the American production of military aircraft. There were indications that Britain was taking title to more than half the combat planes produced. Total output of aircraft in this country lagged behind schedule in 1940: exports to all countries in the 14 months ended in October 1940 were 3,334 planes, of which 1,056 went to Britain, 427 to Canada, and 142 to other British territories.

4. Sale of about 229 light tanks of World War models to Canada for training purposes, in September 1940.

5. Transfer of 50 destroyers, also of World War design, to Britain, in a transaction announced Sept. 2 under which the United States received the right to construct eight bases in British territory in the Atlantic, stretching from Newfoundland to Trinidad and British Guiana.

6. Sale of 132 merchant ships of 470,908 gross tons to Britain and 43 vessels of 61,617 gross tons to Canada, between Sept. 1, 1939 and Dec. 23, 1940. In general, these were old vessels which had been replaced by more

modern tonnage. The above totals do not include 16 ships of 147,526 deadweight tons which were allocated to British agents from the Maritime Commission's laid-up fleet of World War vessels on Dec. 18, 1940. Arrangements have been concluded for the construction of 60 new freighters for Britain.

7. Increasing canalization of American trade into British Commonwealth territories. The British blockade gradually shut off other European markets, causing some distress to American exporters of most agricultural and nonessential products. The effects, however, were overshadowed by the boom in war shipments to British countries. Between September 1939 and August 1940 United States exports to the British Empire amounted to $1,739,733,000, or 44.3 per cent of all American export trade during that period. In July, August, and September 1940, after the collapse of France, over one-third of all American exports by value were shipped to the United Kingdom, with almost two-thirds sold to the Empire as a whole. Export controls applied to an increasing number of essential items were administered so as not to hamper the British war effort.

DEVELOPMENT OF AMERICAN SENTIMENT

By the close of the year, the country was considering how best to extend additional assistance to Britain while minimizing the risks to itself. Public opinion polls indicated that about 60 per cent of all Americans favored giving all necessary aid even at the risk of war. Extraordinary methods were being adopted to expand munitions production with the greatest possible speed. It seemed unlikely that the restrictive provisions of the Neutrality Law and the Johnson Act would be allowed to stand in the way; the President had suggested that military equipment be loaned or leased to Britain, against repayment in kind at a future date. There were signs, particularly evident in President Roosevelt's Columbus Day speech at Dayton, O., that the United States' historic insistence on the freedom of the seas would be rescued from the temporary oblivion to which it had been consigned by neutrality legislation, and used again to justify shipping and naval aid to the British. The American position was strongly stated by Mr. Roosevelt in an outspoken fireside chat on Dec. 29, which rejected the possibility of a negotiated peace and pledged a full measure of assistance. Neutrality and isolation had become, for a time at least, outmoded concepts of American diplomacy. The great question before the public was how much further the United States could or should proceed along its course without becoming completely embroiled in hostilities. This question was answered in one way by those who believed that Britain's war was America's battle, and in another by those who wished only to gain time to strengthen our own hemisphere defenses by bolstering the British. With the opening of Congress on January 3, 1941, the ultimate test of strength between the two groups seemed definitely to have begun.

THE WAR IN EUROPE

By Wheeler Preston

Author and Publicist

THE AUTUMN OF 1939

Determination of Great Britain and France to halt what threatened to be piecemeal subjugation of Europe by the German Reichsfuehrer inescapably involved the entire continent in the holocaust of war. British and French guarantees of the territorial integrity of Poland failed to deter Hitler from his demands for the return of Danzig and a road through the Polish Corridor, and likewise those western democracies would not recede from their position when Germany concluded a non-aggression pact with Soviet Russia. The appeals of friendly neutrals went unheeded, German forces invaded Poland on Sept. 1, 1939, and, accordingly, two days later Great Britain and France declared war on the German Reich. Within three weeks Polish resistance was crushed, the territory was divided between Germany and Russia, and there ensued a pause in hostilities while the powerful antagonists prepared for the struggle that lay ahead.

RUSSIA IN THE BALTIC

Taking advantage of the situation, the Soviet Union was free to pursue its designs in the Baltic. Before October, 1939, had closed, Estonia, Latvia and Lithuania, hoping to preserve some semblance of independence, yielded to pressure and ceded naval and aviation bases to Russia. Their action proved, however, to be in vain. The infiltration of Stalin's agents led to the demoralization of influential leaders in the three little republics by what the United States Secretary of State, Cordell Hull, characterized as "predatory activities." In July 1940 the legislatures of those countries went through the form of "petitioning" the Moscow government for absorption into the Soviet Union, and shortly Estonia, Latvia and Lithuania ceased to exist as independent powers.

FINLAND'S ORDEAL

Russia's appetite was not satisfied by this success. Coincident with the demands made upon the Baltic States, in October, 1939, the Soviet Union sought to obtain like concessions from Finland. Rather than yield, the Finns were resolved to fight to preserve their independence, and in consequence their frontier was attacked by the Russians on Nov. 30, 1939. The Scandinavian countries, fearful of antagonizing mighty Russia and her ally Germany, shrank from aiding Finland or even from permitting men and materials to be transported across their territories from willing but more distant lands. As a result, the Finns fought against hopeless odds.

The conflict raged through the bitter Arctic winter and reached its inevitable conclusion on March 13, 1940 when Finland was forced to accept a peace dictated by Russia. The Soviet Union obtained a lease of Hanko, four small islands in the Gulf of Finland, 750 square miles of the Karelian Isthmus and part of the Rybacki Peninsula, and secured the right of free transit of Russian goods across the railroad linking Petsamo with Norway's ice-free port of Kirkenes; moreover, the Finns agreed to construct during 1940 a 50-mile rail connection from railhead at Kuolajarvi eastward to join a line to be built by the Russians westward from Kandalaksha. The rule of force appeared by now to be well established in Europe.

IN THE WEST

During the lightning campaign in Poland, German forces had been available to take up defensive positions in the Siegfried Line, along the French frontier of the Reich, and facing them were ranged the armies of France and Great Britain, seemingly secure behind the defenses of the Maginot Line. Beyond sporadic raids, the situation remained quiescent through the winter months of 1939-40, the antagonists working at feverish haste to increase their strength by land, at sea, and in the air, each confident that when the time of trial arrived its own might and strategy would suffice to ensure victory.

WAR AT SEA

At sea, meanwhile, there was more activity. As had been the case during the first years of the World War of 1914-18, there was no major engagement between the battle fleets of Germany and Great Britain, but the former power waged an ever-increasing submarine campaign against British mercantile shipping. The British Government soon discontinued the announcement of sinkings of German submarines, and therefore the success or otherwise of its defensive efforts were difficult to judge, but for some months the total of shipping losses did not appear alarming. Late in November, 1939, however, the Germans began to use a type of marine mine exploded by magnetic action set up by the steel hull of a passing vessel. The device proved highly successful until British scientists countered it by the "De-Gaussing" apparatus, an electrified cable stretched around the steel hulls of ships to nullify the magnetic action.

Although warfare by surface vessels was inconsiderable, the British battleship *Royal Oak* was torpedoed on Oct. 14, 1939 while riding at anchor at the Scapa Flow naval base in the Orkney Islands, 786 lives being lost. On Nov. 23, the German pocket battleship *Deutschland* encountered the passenger steamer *Rawalpindi,* operating as an armed cruiser off the southeast coast of Iceland, and sent it to the bottom of the ocean bearing 280 men.

GRAF SPEE

Numerous British and French merchant ships were sunk in distant quarters of the globe by German raiders, in particular by the German pocket battleship *Admiral Graf Spee.* This ship was intercepted in the South Atlantic at sunrise on Dec. 13 by three British light cruisers, *Exeter, Achilles,* and *Ajax,* and a running fight ensued throughout the daylight hours. From behind smoke screens, the three small vessels pounded their adversary repeatedly at short range, and to such good effect that, as the sun went down, the *Graf Spee* was forced to seek refuge for repairs in the Uruguayan harbor of Montevideo. British losses amounted to 72 killed and 31 wounded, while 36 Germans lost their lives and 60 were wounded. These last were put into hospital in Montevideo, and the German commander, Capt. Hans Langsdorff, released 62 British merchant seamen seized earlier from vessels sunk by him.

The Uruguayan authorities required the *Graf Spee* to leave the harbor at expiration of the stay of 72 hours permitted under the terms of the Hague Convention, but Capt. Langsdorff was unwilling to face his adversaries again. He scuttled his ship in the River Plate and his crew was interned, part in Uruguay and part in Argentina; he accompanied the latter of his men up the river to Buenos Aires and there, after addressing them in farewell, he took his life.

The bulk of the crews of merchantmen sunk by the *Graf Spee* had been placed aboard the 12,000-ton freighter *Altmark,* and this vessel, after the sinking of the battleship, sought to make her way back to Germany. In February, 1940, she reached the northwest coast of Norway in safety, and after calling at Trondjhem she journeyed southward in neutral waters. Sighted by British patrols, she took refuge in Joesing Fjord. There, when Norwegian officials declined to make the thorough search of the *Altmark* demanded by the British, the latter acted. On Feb. 16 the destroyer *Cossack* ranged herself alongside the German vessel, a prize crew overpowered the Nazis in a hand-to-hand encounter, and 326 British merchant seamen were rescued from the horrors of impending internment in Germany.

SCANDINAVIA

German use of the neutral waters of Norway had long been of concern to the British Government, particularly with respect to the transport to Germany of Swedish ore from the Norwegian port of Narvik.

On April 7, 1940, British naval authorities announced that they were mining off the coast of Norway, the Stadtlandet Peninsula, Bud and West Fjord areas, to hinder German shipping, and violent protests arose immediately from the Nazi Government. Scarcely had this news reached the outside world when the Germans struck. Proclaiming "protection" of Norway and Denmark from alleged Allied designs, on April 9 German forces invaded those countries by air, sea, and land. Denmark was overrun within a few hours, and Danish ports and airfields were used immediately to support a wholly unprovoked attack upon Norway. That little country resisted desperately, but, taken completely by surprise, ineffectually.

Before hostilities commenced, thousands of German soldiers were already in Norwegian ports, hidden in the holds of seemingly innocent merchantmen, and as they swarmed ashore a Norwegian Nazi group, headed by Major Vidkun Quisling, seized the reins of government. King Haakon, who fled northward with his ministers, urged his soldiers and people to resist the invader and appealed for aid to Sweden and to Germany's enemies. The Swedes refused assistance, but troops and planes were forthcoming from France and Great Britain after inevitable delay with transportation. Landings were effected at half-a-dozen points along the Norwegian coast, but the Allies were unable to establish their positions in the face of furious German assaults, and by May 2 all were withdrawn. The exception was Narvik, which was captured after a costly struggle, but that, too, was abandoned in June when events nearer home demanded all the available strength of the Allies. King Haakon and Crown Prince Olav found refuge in England, where the King sought to aid in the fight against Germany by directing the vast Norwegian shipping which thereby passed under British control.

The Norwegian territory of Greenland was left untouched by the Nazis, the region, according to a declaration of President Roosevelt, lying within the Western Hemisphere and, therefore, in accordance with the principle of the Monroe Doctrine being immune from hostile action on the part of any European nation. British troops were landed on the Danish Faroe Islands to forestall possible German seizure, and more went to Iceland, where the royal power of Christian X of Denmark was vested in the kingdom's Cabinet and its Premier, Hermann Jonasson.

THE NETHERLANDS

Experience in Europe during the early months of 1940 had amply demonstrated that the independence of every country was in jeopardy if Hitler so willed; that, in Europe, isolationism and pacifism merely made attack easier. More proofs were shortly to be forthcoming. Despite repeated solemn undertakings and assurances given by Hitler, The Netherlands and Belgium had feared for their security from the outset of hostilities. With the subjugation of Norway their misgivings were fully justified, for on May 10, without the least warning, with no semblance of excuse save the necessities of major strategy, German troops poured across the Dutch and Belgian frontiers in overwhelming force. Simultaneously, German planes ranged far inland, pouring destruction upon civilian populations whose only desire was to live in peace. The people, set only upon neutrality, were tardy in preparation for war, and, as in Norway, Nazi sympathizers or appeasers actively assisted the enemies of their own race. In the result, the bitter conflict was brief.

Destruction of bridges and railroads, and the opening of the dykes, failed to halt the invaders. As the royal family of The Netherlands fled to England, the spearhead of the German thrust through the country approached Rotterdam, and there dreadful damage was wrought. Within 30 minutes, 54 German planes destroyed the center of that famous old city. Thirty thousand people, mainly civilians—men, women and children—were killed. Afterward the Germans claimed the bombing was a mistake, but—30,000 human beings had been slaughtered. Unaided, beset by irresistible and utterly ruthless enemies, the Netherlanders were unable to make any effective resistance, and on the evening of May 14, only five days after the onslaught had commenced. the Dutch army capitulated.

BELGIUM

Luxembourg had been overrun at the first onrush of German troops toward Belgium, forcing the Grand Duchess Charlotte to seek asylum in France, and as the attack progressed Leopold III of the Belgians assumed active command of his army. In response to his appeal, Gen. Gamelin, generalissimo of the Allied forces in France, ordered his troops to forsake their defenses and rush to the aid of Belgium. The First and Ninth French armies established themselves in the vicinity of Namur, while British divisions bolstered up the Belgian line from that point, through Louvain to Antwerp. German armored divisions broke through the Allied front south of Namur and raced toward the sea; the French abandoned the defense of Namur on May 15; the British fell back on Brussels the following day; and the Seventh French Army retreated from The Netherlands to Antwerp. Still the Allied retreat continued day after day, and by May 24, with the forces falling back toward Dunkerque, the King of the Belgians resolved to capitulate. The order for his men to cease firing was given at 4 a.m. on May 28, Leopold III surrendering with his men, while his ministers fled to France.

DUNKERQUE

By the time Belgium collapsed, many of the French Channel ports had already fallen into German hands, and thus began a desperate effort by French and British forces to get out of Flanders by way of Dunkerque, last remaining port available to them. Nearly 1,000 vessels, cruisers, destroyers, troopships, ferryboats, river barges, and rowboats, approached the shore as closely as possible, raked by German aircraft and artillery as the men waded out on the beaches to meet them. The evacuation went on day and night from May 29 until June 4, during which period some 335,000 men without equipment or organization had been transported to English shores. French losses were not disclosed at the time, but the British admitted that 30,000 of their men were dead, wounded, or missing, and besides 1,000 guns and all transport, they had perforce abandoned all tanks and other armored vehicles. Despite the fact that so many men had been removed from Flanders, the Allies had suffered yet another crushing blow, and Nazi might had once more triumphed.

GREAT BRITAIN

The events which had transpired on the Continent since the invasion of Norway commenced had had a profound effect upon the political situation in Great Britain. "All the foresight and striking power in diplomacy and in strategy has been on the side of the Nazis," declared David Lloyd George, veteran statesman of World War days; "all the blunders, the ineptitude, the slackness on the part of the Allies." The indictment was justified, Parliament and people demanded a change, and on May 11 Neville Chamberlain resigned the premiership. Winston Churchill, so long unpopular for his warnings of the danger from Nazi Germany, was called upon to lead the country and the Empire at the moment of its gravest crisis. "If you ask me what is our policy," said Churchill to the people, "it is to wage war by sea, on land and in the air with all our might. I have nothing to offer but blood, toil, tears and sweat."

The nation rallied round him. Parliament passed an Emergency Powers Defence Act which virtually converted the democracy into a totalitarian state for the duration of hostilities; labor leaders Ernest Bevin and Clement Atlee now agreed to enter the War Cabinet (which they had refused to do as long as Chamberlain headed it); and factory workers toiled night and day without regard to safeguarding their established rights. Profiting by the lamentable experience in Scandinavia and the Lowlands, all avowed Nazi sympathizers were jailed, and the civilian population was organized into a Home Guard to cope with saboteurs, either their own nationals or enemies parachuting from aircraft under cover of darkness. The resolute courage and determination which the British people displayed in this emergency were shortly to be needed.

COLLAPSE OF FRANCE

Following the debacle in the Lowlands, the military situation of the Allies in northern France was desperate in the extreme. The chronic rottenness of the French political machine had destroyed national confidence; Communists and Nazi sympathizers permeated all ranks of the army; industrial unrest was a constant hindrance to the output of armaments. Under such circumstances, it was clear that no effective defense could be put up against such ruthless foes as the Germans had shown themselves to be. In another of the endless shuffles among inept politicians, on March 19 Daladier had resigned the premiership in favor of Paul Reynaud. The latter failed to inspire confidence in either military or industrial leaders, and thus the maximum war effort failed to materialize.

The failure of the operations in the Lowlands had utterly discredited Generalissimo Gamelin, who was replaced in May 19 by Gen. Maxime Weygand, but this did nothing to halt the German advance. When the great Maginot Line, on which such complete trust had been placed, was turned from the west flank, panic seized the French Government. Its fears were intensified as the Germans crossed the Bresle, the Aisne, and the Marne, and when the Nazi mechanized divisions reached the Seine, the country's leaders were paralyzed with terror. Paris was doomed. The Government left the capital on June 10, going first to Tours and thence, four days later, to Bordeaux. Italy, with what President Roosevelt described as a "stab in the back," declared war on France and Great Britain on the day the flight from Paris began, but the entry of that power did not affect the outcome. Already, the great French army was whipped, chopped to pieces in some points, hopelessly split in others, without munitions, food or other supplies. The end was at hand.

ARMISTICE

In Bordeaux, the politicians and soldiers quarrelled once more, some wanting to flee to North Africa, there to continue the struggle, and others insisting that surrender was inevitable. These latter had their way. Marshal Henri Philippe Pétain, 84-year-old veteran, succeeded to the premiership on June 16, and the following day he appealed (through the good offices of Spain) to the Germans, "as between soldiers, after the fight, and in honor," for means to put an end to hostilities. In the historic railroad car in the Forest of Compiègne which had witnessed Germany's humiliation on Nov. 11, 1918, Gen. Charles Huntziger headed the French delegation which, on June 22, 1940, signed equally crushing terms of armistice. France was compelled to yield military occupation of more than half her continental territory to German troops, the dividing line running from Geneva to Dôle, Châlon-sur-Saône, to Paray-le-Monial, Moulins, Bourges, and Vierzon, and thence to about 12 miles east of Tours and south to Mont-de-Marsan and then to Saint Jean-Pied-de-Port. In addition, as outcome of a conflict which had lasted nine months, 21 days, all armaments and the entire French fleet were to be handed over to the victors. Fighting with the Italians during a conflict lasting 14 days had been negligible, but the French were compelled to sign an armistice with the Fascist Government on June 24 under the terms of which they had to yield a 30-mile zone along the common frontier and the bases of Toulon, Bizerta, Oran, and Ajaccio; the port of Jibuti in French Somaliland; and demilitarized zones in Tunisia, Algeria, and French Somaliland. With ample justification, on June 25, the French people observed a day of national mourning.

"FREE FRANCE"

With Pétain as "Chief of State," those living in unoccupied territory (descriptively termed "Free France") turned with heavy hearts to the task of restoring some semblance of normal life. Some 2,000,000 soldiers were held in captivity in Germany, communication of any sort with that part of France in German occupation was extremely difficult, industries were at a standstill, and overseas trade blocked. On July 2 Pétain's government set up a temporary capital at Vichy, and there, on July 9, the French Parliament voted itself out of existence. The following day both houses of the Legislature, sitting in joint session as a National Assembly, vested in the Chief of State all administrative, legislative, and judicial functions, and the old marshal, using the kingly "We," signed three constitutional acts signifying the demise of the Third Republic. As Vice-Premier, Foreign Minister, and his ultimate successor, he chose Pierre Laval, who soon began to display pro-Nazi and anti-democratic sympathies. On Oct. 22 Hitler conferred with Laval somewhere in France, but the latter's popularity in "Free France" was by this time waning, and on Dec. 14 he was ousted from his posts. The office of Foreign Minister went to Pierre Étienne Flandin, who had opposed France's entry into the war in 1939 and was reputedly ill-disposed toward Great Britain.

Simultaneous with the operations of the "Free France" directed from Vichy, were the activities of "Free Frenchmen" operating from headquarters in London. With the collapse of France, a number of French officers and men remained faithful to the pledge to continue the struggle, and in England they set up a government under the leadership of Gen. Charles de Gaulle. Besides the troops under de Gaulle's command, there was a substantial proportion of the French fleet which had been in British ports or at Alexandria at the time of the armistice, and most of the colonies of French Equatorial Africa rallied to his support. An abortive attempt was made by de Gaulle, in cooperation with units of the British fleet, to effect a landing on Sept. 23 at Dakar, Senegal, West Africa, but when the local garrison of Frenchmen resisted the engagement was broken off. On Nov. 9 de Gaulle succeeded in capturing Libreville, in Gabun, on the French West African coast, and on Nov. 17 Port Gentil, in the same colony, passed into his hands. A "Belgian Government in Exile" was formed in London on Oct. 24, and this body gave de Gaulle control over the Belgian Congo. The large area of French and Belgian Africa which thus came indirectly under British influence was offset by that loyal to the Vichy Government, notably Syria and the North African territories, which Weygand administered on behalf of Pétain.

BRITAIN AT BAY

The position of Great Britain was critical. Ignominious defeat in Scandinavia and the Lowlands had been followed by collapse of her strongest ally and therefore, alone now, the island kingdom had to bear the entire brunt of Nazi fury, and wage in the Mediterranean unaided a conflict in which France was to have borne a large share. Soldiers and civilians alike worked at desperate speed to protect the shores on which the enemy was expected almost momentarily to land, and on June 29 the British Government announced demilitarization of the Channel Islands (adjacent to France and relatively distant from England) in order to conserve all strength for the test that was now awaited. Most serious at this period was the loss of French naval aid.

Despite official and personal promises and assurances to the contrary, at the time of the armistice the French leaders handed over to Germany all the French fleet under their immediate control, an act which put in jeopardy the entire British position. A large proportion of the ships which the Nazis were able to seize were at Oran, the Algerian naval base on the north coast of Africa. There, on July 3, when the French commander refused to surrender his vessels to the British, or to scuttle them, the ships of the latter power opened fire, sinking the *Dunkerque* and an older battleship, two destroyers, and a seaplane tender. The Vichy Government broke off diplomatic relations with Great Britain for what it denounced as "treachery," but by this time there was a new spirit abroad in England. The British people were in the mood expressed for them by Prime Minister Churchill in a worldwide radio address on July 14: "We are ready to defend our native land. . . . Be the ordeal sharp or long—or both—we shall seek no terms, we shall tolerate no parley. We may show mercy; we shall ask none."

RUMANIA

In truth, resolution was necessary. Taking advantage of German preoccupation in the West, the Soviet Union demanded of Rumania in the last week of June immediate restoration of Bessarabia and Northern Bukovina, lost at the time of the Russian Revolution in 1917-18.

The government of King Carol II, unable to enlist the aid of Great Britain and France, guarantors of the territorial integrity of his country, yielded to the Russians on June 28. This encouraged Rumania's other neighbors to seek return of lands lost by the post-World War peace treaties, and as a consequence Bulgaria regained Southern Dobruja on Aug. 21, and half of Transylvania went back to Hungary on Aug. 30. The trials of dismembered Rumania were not yet over. Acting under German pressure, the King appointed on July 4 a pro-Nazi, anti-Semitic Cabinet under Premier Ion Gigurtu, and this, in turn, gave way on Sept. 5 to Gen. Ion Antonescu, who seized the reins of government. King Carol was forced to abdicate the following day in favor of his son Michael, and on Sept. 15 a totalitarian state, upheld by German bayonets, came into being. With Hitler now dominant on the Danube, Hungary promptly acknowledged German suzerainty and accommodated Nazi troops on her soil, leaving only Yugoslavia and Bulgaria among Balkan powers to continue a nebulous, uneasy form of independence.

THE FAR EAST

Awaiting invasion of her shores at any moment, patching up the gaps in Near East defenses caused by the collapse of France, watching helplessly the collapse of her policy in the Balkans, Great Britain, as the summer months progressed, was harassed, too, by the situation in the Far East. Here Japan, wearying in her three-year-long war against China, became ever more threatening to Britain. English troops were withdrawn from Shanghai, Hong Kong was prepared to withstand siege, and, on July 17, Great Britain was compelled to agree to close for three months the Burma Road as a means for transportation of supplies to Chiang Kai-shek's government. On Sept. 22 France agreed to give Japan air bases in Indo-China and the right to maintain troops in that colony, and Japan climaxed these achievements on Sept. 27 by signing with Germany and Italy the ten-year Pact of Berlin, virtually making the country a partner in the Axis. For whatever it would prove to be worth, Rumania formally adhered to this Berlin-Tokio-Rome pact, and Hungary and Slovakia followed suit, the significance being the extent to which it portended a near-world-wide acceptance of totalitarian ideologies and practices.

THE BATTLE OF BRITAIN

As the days of summer shortened in Great Britain, the awaited invasion seemed ever nearer and nearer but, on the word of the government in London, it was never even attempted. In August, however, the daily attacks on London by German aircraft were intensified, reaching their peak on the 15th of the month, when 1,000 planes flew over in successive waves. In varying intensity, and principally at night, the raids continued daily until the close of the year, the loss of property and civilian life reaching appalling dimensions. The number of civilians killed by Nazi raiders over Great Britain was 6,954 in September, and figures for succeeding months were October, 6,334; November, 4,588; and December, 3,793. Those killed included 2,351 children. Great damage was done to numerous historic shrines in London, and during one dreadful mass raid on Coventry the ancient landmarks of the city, including the Cathedral, were virtually obliterated. Great Britain retaliated to some extent by nightly bombings of points at great distance in Germany, and simultaneously the ports on the Channel coast of France from which invasion craft might set forth were systematically attacked.

The toll of sinkings of British merchant vessels became another serious problem of the Government, the lack of French naval craft and the requirements of the British forces in the Mediterranean making it difficult to convoy ships across the Atlantic. In some measure the situation was alleviated by the trading on Aug. 20 of naval and air bases in North America to the United States in exchange for the transfer of 50 over-age American destroyers. This transaction was not only of practical assistance but it was also accepted in Great Britain as a gesture indicating an identity of interests between the two countries with regard to Nazi aggression. The successive steps, too, taken by the United States to put the country in a state of defense were heartening to a people fighting with their backs to the wall.

After vacating the premiership, Neville Chamberlain served for a while in his successor's Cabinet, but ill health forced him to resign, and on Nov. 9 he died. His colleague Lord Halifax, his companion through the days of appeasement commencing with Munich in 1938 and terminating with the rape of Czecho-Slovakia the following spring, continued as Foreign Secretary in the Cabinet of Winston Churchill. Following the death in Washington of Lord Lothian, British Ambassador, Lord Halifax was selected on Dec. 23 to succeed him, this marking the first time in history that an ambassadorship was filled by the occupant of the highest post in the British Cabinet. As the year 1940 closed, Great Britain faced her foes undaunted, strengthened in the conviction that her cause was just.

ITALY AT WAR

Hostilities in the Mediterranean between the Fascist forces and Great Britain were not momentous during the weeks immediately following the collapse of France. Seemingly, Italy had entered the conflict to garner the fruits of victory rather than to wage a war, and thus there was a lull while the country made ready. This was understandably acceptable to the British, given time to find men, equipment and ships for operations in the Mediterranean despite the desperate calls at home. They could not, however, entirely fill the gaps caused by French defection. The Italians were able to cross the frontiers of Egypt from Libya, and of the Anglo-Egyptian Sudan and Kenya Colony from Ethiopia, and for some months the Italians were perforce left in possession of minor posts. Simultaneously, Italian forces advanced from Ethiopia into British Somaliland in overwhelming strength, and as a consequence the British, unable to provide forces adequate for its defense, evacuated the country entirely on Aug. 19. Until the onset of winter, sea and air warfare in the Mediterranean was of a desultory nature, and the military situation continued without change.

GREECE

Without any sort of preliminary discussion, at 3 a.m. on Oct. 28 Greece received an ultimatum from Italy calling for immediate cession of naval and air bases, and roads of access to them, and had three hours for acceptance. Without hesitation the demand was refused, and immediately Italian forces poured across the frontier from Albania into Greek territory, while Italian aircraft ranged throughout the country without hindrance, killing at sight civilians ignorant of the fact that hostilities had broken out. The small Greek army rushed to arms and, with the aid of British aviators, the Italians were driven back to Albanian soil by Nov. 2. Within a month the Italian central defense line in Albania crumbled before the onslaught of the Greeks, and on Dec. 6 the seaport of Porto Edda, in southern Albania, fell into Greek hands. Argyrokastron, an important strategic point, was lost by the Italians two days later, and until the close of the year the Greeks maintained a steady advance from one important Albanian stronghold to another.

NORTH AFRICA

The Italian commander-in-chief in Albania was replaced on Dec. 6 (but only lasted nine weeks), and the same day Marshal Pietro Badoglio resigned as chief of staff, and the heads of the Italian navy and air force were removed. This augury of trouble ahead was followed on Dec. 9 by the onset of a British attack in North Africa which completely disrupted Italian plans. On that date, in a surprise move at Sidi Barrani, Italian advance position in Egypt, Australian mechanized units and other British forces overran the Fascist defenses and took great numbers of prisoners. Pressing the attack without pause, the Italians were driven back 75 miles into Libya and had to retreat to Bardia, where they were besieged. After an investment of 20 days the Italian garrison capitulated on Jan. 5, 1941, and up to that time the Fascists had lost some 80,000 men and large amounts of equipment and aircraft. The Italian forces remaining in the field were given no respite, and within a few days several thousand were besieged in Tobruk, which fell to the British on Jan. 22. While it was highly improbable that the major issues of the war were to be settled in the Mediterranean, the evident ineptitude of the Italians gave encouragement to those who suspected that the invincibility of Axis strength was a myth which could be shattered.

IN REVIEW

During 1940 almost the whole of Europe had passed into the hands of totalitarian leaders who ruthlessly disregarded conventions designed to regulate international relations and protect the innocent. No nation, it had been generally agreed, would attack another without warning and until all resources of mediation had been exhausted, and open towns and civilians would always remain unmolested. Nevertheless, in 1940 one country after another had become defunct, or was mutilated, or was subjugated, and millions of non-combatants were made to suffer in causes with which they had no concern. Only a few weak, helpless countries preserved a precarious independence, and that solely at the will of Germany, Italy, and Russia. The British Empire alone (with little Greece at her side) continued to wage war to preserve the democratic system which the majority of mankind had chosen as its way of life.

ROYAL REFUGEES IN AMERICA

By William M. Schuyler

Editor, *The American Year Book*

THE CROWN PRINCESS OF THE NETHERLANDS

One of the consequences of the war in Europe in 1940 was the considerable number of royal personages who sought temporary asylum in the United States and Canada. The practical control of the seas by Great Britain and the maintenance of the Clipper air service by this country between Lisbon, Portugal and New York assured safe transport for the fugitive royalties once they were fortunate enough to reach embarkation ports and the Portuguese capital.

The first to arrive on this side of the Atlantic was Juliana, Crown Princess of The Netherlands who, with her two children, the Princesses Beatrix and Irene, landed at Halifax on June 12 from the Dutch cruiser which had brought them from England. The Queen of The Netherlands and the Prince Bernhard, Juliana's husband, remained in England. The Crown Princess departed at once by train for Ottawa where she awaited the arrival a few days later of the new Governor General of Canada and his wife, the Earl of Athlone and the Princess Alice, the latter being the cousin of Princess Juliana. She was the guest of the Athlones for some weeks and then took a lease on an estate near Ottawa where she planned to reside indefinitely. On Dec. 18-20, the Crown Princess was the guest of the President at the White House.

THE FORMER EMPRESS OF AUSTRIA-HUNGARY

Following an adventurous journey through France and across Spain in a motor caravan carrying other royalties and notabilities, the Empress Zita and her five younger children, escorted by the Archduke Otto, the Empress' eldest son and heir to the Hapsburg claims in Austria and Hungary, finally reached Lisbon. Leaving his family there for the time being, Archduke Otto flew to New York in a Clipper plane to join his brother, the Archduke Felix, who had been in the United States for a year or more.

The Empress and her daughter, the Archduchess Elizabeth, arrived by the same means of travel in New York on July 20. The other children arrived in New York shortly after. The family went to Royalston, Massachusetts, where they were to reside for an indefinite period on the estate of Calvin Bullock, a New York broker. Some months later, on October 7, the Empress' mother and sister, the Dowager Duchess of Parma and the Princess Isabelle, came over by Clipper plane and joined their kindred in Massachusetts.

The Empress Zita, born a princess of Bourbon-Parma, is the widow of the Emperor Karl I of Austria-Hungary who, after a brief reign of two years, lost his throne in 1918 and died in 1922. The Empress was given asylum in Spain for some years by King Alfonso XIII. After the fall of the Spanish monarchy, she went to Belgium where she was living in the Castle Steenockerzeel when the Germans violated Belgian neutrality in May, 1940 and invaded the country, forcing the Empress and her family to flee to France.

THE GRAND DUCHESS OF LUXEMBOURG

Charlotte Aldegonde, Grand Duchess of Luxembourg, came to New York by plane from Lisbon on October 4, accompanied by her mother, the Dowager Grand Duchess Marie Anne. She had been preceded to these shores by her husband, the Prince Felix of Bourbon-Parma, brother of the Empress Zita, and their six children, including the Crown Prince Jean.

Prince Felix and the children crossed the Atlantic on the United States cruiser *Trenton* and landed at Annapolis, Maryland on July 25. On the same day President Roosevelt received the travelers in Washington and entertained them at luncheon at the White House. They then proceeded to New York and thence to the estate of Joseph E. Davies at Grenvale, Long Island, Mr. Davies having formerly represented the United States in Belgium and Luxembourg. There they were later joined by the Grand Duchess and her mother. In the middle of November, the Grand Duchess took her family to Canada and established a provisional government for the grand duchy at St. Henri de Mascouche near Montreal.

THE CROWN PRINCESS OF NORWAY

The German invasion of Norway, having forced the ultimate flight of King Haakon VII and the Crown Prince Olaf to England, had already caused the withdrawal of the Crown Princess Martha and her three children to Sweden where they found refuge with the Crown Princess' parents, the Prince and Princess Carl of Sweden. For reasons not explained but apparently of a political complexion, the Crown Princess found her position in Sweden uncomfortable and accordingly she accepted President Roosevelt's personal invitation to come to the United States.

The Princess Martha and her children, the Princesses Astrid and Ragnhild and the Prince Harald, boarded the American army transport, *American Legion,* at Petsamo, Finland. After a perilous voyage of 12 days through mine-infested waters and exposed to German submarine attack, the ship arrived in New York on August 28. Staying overnight at a hotel in New York, the Princess and the children went next day by motor to Hyde Park House where they were the guests of the Roosevelts for some time. She took a house on Cape Cod for the remainder of the summer. Later in the year she was a guest at the White House while the search for a suitable home for her near Washington was in progress. Such a home was found for her (Pook's Hill) near Bethesda, Maryland.

The Crown Prince Olaf came to the United States December 23 by Clipper plane from Lisbon in time to join his family for Christmas.

POLITICAL GEOGRAPHY

By Richard Hartshorne

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GENERAL

That political boundaries shifted, or even disappeared, with confusing rapidity during the past year was one of the more obvious features of world news. It is not so commonly recognized that such changes are neither very unusual nor necessarily significant. Not so long before the end of the first World War, Germany and her allies controlled all, or nearly all, of the territory of Luxemburg, Belgium, Serbia, Rumania, and the Baltic, Polish, and Ukrainian parts of Russia. But little of all that expansion was reflected in the many boundary changes that actually resulted from the war. In fact, the most important change in the political geography of Europe during the period in which Germany and Austria-Hungary controlled such large areas of other states was the internal disintegration that was undermining Austria-Hungary itself.

It is an essential corollary of any

land war, whatever the purpose for which it is fought, that the political boundaries between the states at war lose all validity; in their place appear new international boundaries—the battle lines. From the point of view of the more lasting phases of political geography, the location of such military international boundaries is of little importance unless it leads to internal changes of lasting import within the conquered areas or presages a more permanent shift in the territories of states. Obviously such permanent changes will depend on the military outcome and on the political purposes of the victorious states —not merely the original purposes under which they went to war, but also such purposes as may have developed during the war as a result, in part, of the changes caused by the military operations. The "war aims" of all the belligerent states in the last war changed during its course.

THE GERMAN OBJECTIVES

The immediate purpose of the present European war, at the start, was unquestionably to effect a permanent territorial change, the extension of the eastern boundary of Germany, an additional step in the series of territorial changes that began with the unopposed, but nonetheless military, occupation of Austria, the Sudetenland, and the Czech lands. Because this step was opposed by France and Britain, Germany was forced to fight a war on the west in order to hold the conquests in the east. In the resultant conflicts, in the diplomatic as well as military field, Germany has produced, for the time being at least, a greater change in the political map of Europe than has occurred since Napoleon.

Brief, effective descriptions of these various territorial changes, with maps, will be found in the "Geographic Record" in each issue of the *Geographical Review* and in similar notes in the *Journal of Geography*. As a reference background for the course of events in Europe, the American Geographical Society has published *Environment and Conflict in Europe: Eighteen Basic Maps,* with accompanying pamphlet, 1939; the maps are printed on one large sheet, a large central map surrounded by 17 smaller maps.

In general Germany has extended control, in varying degree, over most of the Continent west of Russia. In contrast with the military boundary of 1914-1918, the double line of trenches separated by no-man's land, a boundary shifting slightly with every successful attack from either side, Germany has succeeded in establishing a military boundary in the narrow seas that separate Great Britain from the Continent. On the other hand, current air warfare renders that boundary less complete than the battle lines of the last war; both sides cross it daily, or nightly, to drop bombs far in the interior of the opposing land.

Whatever the outcome of the present war may be, it is already clear that far greater changes will have been effected internally in the areas that have been conquered since 1938 than was intentionally effected during the first three and a half years of the last war. It is clear that the extent and importance of these changes varies greatly in the different areas that have been brought under foreign control, in accordance, more or less, with the purposes underlying conquest or control.

SCOPE OF GERMAN CONTROL

The areas over which Germany has extended its control may be classified into several groups, according to the extent to which that control points toward permanent territorial plans.

(1) Certain adjacent areas have been "incorporated" as integral parts of the German Reich, the previous boundaries being wiped out as international boundaries. Such areas include Austria, the Sudetenland (parts of former Czechoslovakia with predominantly German population), the formerly autonomous district of Memel in Lithuania, the Danzig Free

State, the areas of Poland that had been controlled by Prussia from the time of the partitions of Poland until 1914 together with some extension into Polish areas that were not a part of pre-war Germany before 1914, and, apparently, Alsace and Lorraine. Germany at the moment, therefore, includes all the areas that were included by the 1914 boundaries (with the possible exception of North Schleswig, concerning which information is lacking); in addition it includes essentially all the German-speaking areas of the former Austrian Empire, with the exception of the South Tyrol, which has apparently been abandoned to Italy. In addition, the boundary of the Reich proper has been extended in one or more places on the east to include Polish districts not previously a part of Germany, and it is not unlikely that similar extensions may be made in critical districts on the western front.

(2) Certain other areas have not been incorporated as integral parts of the Reich, but have nevertheless been included within its limits as provinces to be ruled not by local governments but by direct and permanent control from Berlin, much as though they were colonies. This is clearly the situation in the Czech lands of Bohemia and Moravia and may also be the plan for the central part of Poland.

(3) Over a large area of western and northern Europe where complete political control has been made possible by the armies of occupation, there does not appear to be the intention to establish permanent and direct German control, but rather to permit the maintainance, or new establishment, of indigenous governments that will "cooperate with", *i.e.*, accept direction from, Germany. This is clearest in the case of northern France, Denmark, and Norway, not so sure in the case of Belgium, Netherlands, and Luxemburg. Since Luxemburg is predominantly German-speaking and includes part of the all-important Lorraine iron mining and smelting region, there are undoubtedly many Nazis who will wish to incorporate it in the Reich. There is also some evidence of an attempt to convince the people of The Netherlands that they are properly German, and the same may be true with regard to the Flemish population of Belgium. Any plans on this basis would call for a division of Belgium, incorporating Flanders with Antwerp in the Reich, and setting up the Walloon area as a "protectorate".

(4) Finally there remain a number of states whose independence is still recognized and which are still controlled, more or less, by their previous governments, but which have nevertheless come under German control to such an extent that their lands are open to the passage of German armies so that their continued independence is constantly subject to German goodwill. This has been true of Slovakia since its separation from Czechoslovakia in 1939, and is now the case in Rumania. The situation in "unoccupied" France is practically the same and it is possible that Hungary and Spain must also be considered in this group. In addition Sweden has been forced under German control, at least to the extent of permitting passage of military forces.

THE SOVIET AND THE BALTIC COUNTRIES

In similar fashion the Soviet Union has acquired complete possession of certain districts of Finland, of all eastern Poland, and of northern Bukovina and Bessarabia, and, in somewhat different manner, has been able to incorporate the three small Baltic states. In all of these areas, far-reaching internal changes are undoubtedly being rapidly effected. In the case of the Baltic provinces, at least, these include the elimination, quite probably permanent, of German minorities that have been resident there for centuries.

BORDER ADJUSTMENTS IN HUNGARY AND BULGARIA

As by-products of the destruction of Czecho-Slovakia and the manoeuvers of Germany, Italy, and Russia in the Balkan area, Hungary regained a strip of territory along its northern frontier of predominantly Magyar (Hungarian) population, as well as Carpathian Ruthenia, and an arbitrarily sliced section of Transylvania —of both Magyar and Rumanian population. ("Transylvania Partitioned", by Philip E. Mosely, *Foreign Affairs,* Oct. 1940, 237-244.) Bulgaria likewise has received, from Rumania, a part of the Dobrudja district.

ITALY

The Italian occupation of Albania in 1939 represented a minor change in the status of what had been essentially an Italian protectorate. Eliminating an international boundary between Italy and Albania, it created an Italian-Greek boundary, which at the moment is being pushed in the reverse direction. Just what territorial gains Italy has acquired at the expense of France has apparently not been determined. Indeed, the present trend in military developments raises the question whether Italy is not heading toward inclusion in the list of states theoretically independent but actually under German control.

Contrary to the statements of various German and Italian spokesmen, there is no indication that the control of the Continent by the Axis powers will lead to the elimination of international boundaries. Certainly there has been no tendency to minimize the importance of the boundary between Germany and Italy and plans now being discussed most widely in Germany for the organization of Europe, after a presumed Axis victory, would require the strict maintenance of boundaries definitely separating the German areas of the Reich proper from the non-German areas under its control. The present procedure in the Balkans does not point either to a federation or to a wiping out of boundaries but simply to changes in location of boundaries that are all, however, to be made open to German penetration.

PROBLEMS INVOLVED IN NEW BOUNDARIES

In case of a defeat of the Axis powers, a unification of Europe without international boundaries is no less remote a dream. Whatever organization of European states may be projected, it can not fail to recognize the distinctiveness of individual states and must therefore re-erect political boundaries between them. It is hardly conceivable that the pre-war boundaries of 1939 would be restored; that the German-Czech boundary drawn after Munich is incapable of being sustained has been sufficiently demonstrated. Neither does it seem probable that boundaries would be restored to the *status quo* of August 1938, or of 1937; more probably many new boundaries will be drawn in Europe.

The determination and delimitation of new international boundaries presents a host of problems concerning which the archives of many states have long held a mass of miscellaneous evidence but on which systematic scientific studies have been relatively rare. *International Boundaries: A Study of Boundary Functions and Problems* (Columbia University Press, 1940) by S. Whittemore Boggs, geographer of the U. S. Department of State, presents an excellent brief consideration of such problems as found in each of the major continents.

Whatever the outcome of the war, no readjustment of European territories can ignore the more permanent factors of its political geography. These include not only the physical structure of the various parts of the continent, but also the major routes of communication and the focal centers of regional life, the core areas of distinct national groups, and the long historical traditions of regions politically united, in many cases, for centuries. These factors are presented, in their inter-relationships in historical development, in chapters 5-10 of Derwent Whittlesey's *The Earth and the State* (New York, 1939). Though written just before the outbreak of the present war, they furnish an excellent background for interpretation of present and future events in Europe.

The extraordinary changes in the political map of western Europe effected for the time-being by the German conquests do not, as yet at least, indicate any major changes in the fundamental divisions between areas of different nationalities. On the contrary, just as the Napoleonic conquests failed either to add adherents to French nationality or to any concept of European union, but rather stimulated the development of other national groups, the present Nazi conquerors are winning few either to Germany or to any plan for a German-controlled Europe.

THE POLISH PROBLEM

In certain areas on the east, however, military conquest has prepared the way for a radical change such as has never been known in modern war. In *Mein Kampf*, Hitler has denounced the earlier Prussian policy of attempting to Germanize the Polish population of West Prussia ("the Corridor"), Posen, and Upper Silesia as both futile and debasing of German blood. He is now putting into action the more ruthless and effective method indicated there of driving out the overwhelming majority of the population, Polish from earliest historic times, and replacing them by German settlers—in part those who were forced to leave the Baltic states under his agreement with the Soviet Union. This is one of the most drastic changes in the geography of peoples in historic times. It is not comparable with the displacement of scattered hunting tribes by European agricultural settlers in the New World, for these areas of Poland were intensively cultivated by a dense agricultural population. In comparison with the exchange of minorities effected by agreement between Turkey and Greece after their war in 1922, no other lands within remnant Poland are made free for the exiles; they are simply forced into a region already overcrowded in terms of its resources and so disrupted in its economy that starvation of millions appears the most probable result.

ALSACE-LORRAINE AND TYROL

Whether the forced emigration of French people from Alsace and Lorraine is on anything like the same scale is not clear. Current reports do not show whether this is intended (a) merely to eliminate the French-speaking minority from the German-speaking area, (b) to extend the linguistic frontier a short distance westward to correspond with the political boundary of 1871-1914 between the two countries, or (c) to push that frontier still farther westward, perhaps with the view of incorporating all the iron ore region in the German Reich.

On the other hand, in the desire to eliminate a major bone of contention between Germany and Italy, Hitler is forcing a retreat of German-settlement from the Trans-Alpine district of South Tyrol (H.G.L., "The Transfer of German-Speaking Peoples from South Tyrol"), *Bull. of Internat. News,* April 6, 1940, 411-413.

NORTH AFRICA AND THE NEAR EAST

The collapse of France has created a unique, but inevitably temporary, situation in the political geography of the Mediterranean areas under European control. So long as the British navy controls the Mediterranean Sea, the Axis powers can not collect the colonial spoils of the conquest of France. French forces in North Africa and Syria, for the time-being, hold these areas as colonies of a state that itself can barely be said to exist. The situation is obviously one of precarious balance in which relatively minor engagements may have far-reaching effects, particularly in case of a more or less even draw in the war as a whole.

Africa south of the Sahara has as yet been relatively little touched by the war, but major success of the Axis powers in the Mediterranean would change this situation radically. Whittlesey has treated the political geography of this "Exploitable Continent" in thorough fashion in a major chapter of his *The Earth and the State* (New York, 1939, pp. 304-394).

In the Near East one of the most significant facts is that Turkey shows no tendency to use the present opportunity to seek re-conquest of her former imperial domains but maintains the modern nationalist course adopted by Kemal Pasha.

THE FAR EAST

The French and Netherlands colonies in the Far East have also been set adrift as colonial empires. In this realm, however, the protection of the British navy is far less effective, and the situation is made particularly acute by the immediate needs of Japan in the continuation of her war in China, as well as by her plans for expansion to the south. To date, the only change in territorial control is the virtual occupation of parts of French Indo-China by Japan. (Rupert Emerson, "The Dutch East Indies Adrift", *For. Affs.*, July, 1940, 735-741; E. van Zyll DeJong, "The American Stake in Netherlands India", *Far Eastern Surv.*, June 19, 1940, 145-153); T. A. Bisson, "Indo-China: Spearhead of Japan's Southward Drive", *For. Pol. Reports,* Oct. 1, 1940, 166-176).

In China the war has developed a more definite pattern of territorial control and organization. While Japan can show some success in conquest of the coastal regions from Manchuria to Indo-China and even in organizing "puppet" Chinese governments under its thumb, in the interior of the country, the Chinese have shown far more surprising success in organizing a "Free China", which, with the rapid development of small, scattered industries, is attaining a considerable degree of economic as well as complete political independence. (Harold S. Quigley, "Free China", *International Conciliation,* April 1940, 131-180. Attention should be called in this connection also to the authoritative historical and ethnographic study, by Owen Lattimore, *Inner Asian Frontiers of China,* Amer. Geogr. Soc., Research Series No. 21, New York, 1940.

THE AMERICAS

Though there have been no significant changes in the outward pattern of political geography in the Americas, the repercussions of two major wars in Europe and Asia have produced notable internal changes in many states and, more particularly, have led to a complete re-orientation of foreign policy throughout the Americas. For the first time in the history of the American states, their intermediate position between Europe and Asia has come to have major political and strategic importance. Likewise, for the first time since the independence of the Hispanic American states was established a century or more ago, does the possibility of European control appear as a serious menace.

Internally the new situation has led to a rise of an increased emphasis on national unity in many South American states. In Brazil, this tendency is perhaps for the first time overcoming the previously stronger regional loyalties. (Preston E. James, "Forces for Union and Disunion in Brazil", *Journal of Geogr.,* Oct. 1939, 260-266). Furthermore, not only in Brazil but in Uruguay and other states, vigorous measures have been taken toward assimilating the concentrated German, Italian, and other foreign settlements. (Pierre Monbeig, "The Colonial Nucleus of Barao e Antonia, Sao Paulo", *Geogr. Rev.,* April 1940, 260-271; Preston E. James, "The Expanding Settlements of Southern Brazil", *Geogr. Rev.,* Oct. 1940, 601-626).

Externally, the major result has been a general rapprochement between all the states of the Americas for purposes of defense. Though Canada is a British Dominion engaged in the European war, the United States has accepted defense of Canada as essential to its own defense and that conclusion has been warmly welcomed in Canada; the concrete expression is being constructed in the naval bases that the United States, by agreement with Britain, is building on British soil for American forces. (John MacCormac, *Canada: America's Problem,* New York, 1940).

The great cultural, political, and economic cleavage between English-speaking America and Hispanic America has been bridged more effectively at recent Pan-American meetings than ever before. (For an historical-geographic background of the cleavage between English-speaking and Latin America and for the division of the latter into many states, see Chapters 12-15, of Derwent Whittlesey, *The Earth and the State,* New York, 1939).

THE MONROE DOCTRINE CONCEPT

The Monroe Doctrine, from its beginning, has represented one of the most significant concepts in the political geography of super-international areas, but a concept very vaguely defined or expressed. Conceived originally as an article of national defense for the United States, and supported by Britain as an article of her own imperial defense, it was undoubtedly construed by many during the period of rising American imperialism following the Spanish-American War, as a claim by the United States to hegemony over the Americas. European writers in political geography, particularly the German school of geopolitics, imbued with European concepts of imperialism, confidently expected it to be translated in time into a definite territorial empire of the United States. At the present time the concept is being reoriented to construct a defensive union of the states of the Western Hemisphere against political, economic, or military aggression from either Europe or Asia. Though a union only for defense, it is more than an ordinary alliance or entente: since the military forces must come largely from the United States, whereas many of the critical defense points are in the other countries, translation of the concept into reality requires the construction of bases in other American countries for use by forces of the United States. (Among the host of publications dealing with this subject during the year, may be mentioned: the volume on "Our Latin American Trade," of the *Annals of the American Academy of Political and Social Science* (Vol. 211, 1940), with articles by Lew B. Clark, Frank E. Williams, and others; Stephen Duggan, "The Western Hemisphere as a Haven of Peace?" *For. Affs.,* July 1940, 614-631; Alvin H. Hansen, "Hemisphere Solidarity; Some Economic and Strategic Considerations," *For. Affs.,* Oct. 1940, 12-21; W. F. Cunningham, "Design for an Inter-American Union," *Inter-Amer. Quart.,* July 1940, 5-15; Howard J. Trueblood, "Economic Defense of the Americas," *For. Pol. Repts.,* Aug. 1, 1940, 126-136; and A. Randle Elliott, "European Colonies in the Western Hemisphere," *For. Pol. Rpts.,* Aug. 15, 1940, 136-148).

Any arrangement to defend a particular part of the world may, if challenged, require precise definition of what area is included. Fortunately nature has for the most part separated the lands of America from either Europe or Asia by large oceans. Where these narrow in Bering Sea and Bering Strait the well established, though irregular, boundary between the Soviet Union and Alaska is clearly defined. Southward through the Pacific, there are many islands, including French possessions, that might be regarded as belonging to either hemisphere, and the same is true of New Zealand. Colonel Martin's suggestion that the International Date Line offers a well accepted division might solve this problem; it omits New Zealand, but does necessarily include many of the French islands (Lawrence Martin, "The Geography of the Monroe Doctrine and the Limits of the Western Hemisphere," with map, *Geogr. Rev.,* Oct. 1940, 525-528). More serious questions are found in the Atlantic. Following customary geographic usage, the United States Government announced that it regarded Greenland, though a Danish colony, as part of the American hemisphere, on the same footing as European possessions in the West Indies. Iceland on the other hand has more commonly been considered by geographers as part of the European realm, but Stefansson effectively presents the case for Iceland as an American state, a conclusion which Martin supports and which is certainly sound from a strategic viewpoint. (V. Stefansson, *Iceland: The First American Republic,* New York, 1939; Philip E. Mosely, "Iceland and Greenland: an American Problem," *For. Affs.,* July 1940, 742-746; Earl P. Hanson, "Should We Buy Greenland?" *Harpers,* May 1940, 570-577.) On the other hand the Cape Verde Islands, though in the same longitude as Greenland, are so close to Africa as to be considered with the Eastern Hemisphere. Presumably the same is true of the Azores, closer to Portugal than to America and more Portuguese in character than Hawaii is American.

Particularly timely are the geographic studies of American possessions—Puerto Rico, Virgin Islands, Canal Zone, Alaska, Hawaii, and the Philippines—by a group of authors headed by William H. Haas, *The American Empire: a Study of the Outlying Territories of the United States,* (University of Chicago Press, 1940); and the study by Stephen B. Jones and Klaus Mehnert, "Hawaii and the Pacific: a Survey of Political Geography," (*Geogr. Rev.,* July 1940, 358-375).

THE UNITED STATES AND LATIN AMERICA

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PAN AMERICAN NEUTRALITY

Undoubtedly the effort to safeguard the Western Hemisphere against being engulfed by the ever enlarging European War constituted one of the principal Pan American policies of the year 1940. The 21 American republics, by the so-called Declaration of Panama of Oct. 3, 1939, had established a security zone approximately 300 miles wide adjacent to the territorial waters bordering their coasts, and had requested the belligerents to comply with its provisions. Replies were received from Great Britain and France in January, 1940, to the effect that it would be impossible for their governments to observe the restrictions unless German warships and vessels of commerce were kept out of the zone. A reply from the German Government, dated Feb. 16, 1940, pointed out that territorial possessions of its enemies in the security zone gave advantages which Germany could hardly overlook in working out a new development of the international law of neutrality.

Nevertheless the Inter American Neutrality Committee created by the Panama Conference met in Rio de Janeiro and on April 27, 1940 formulated certain important recommendations. They based their findings upon the fundamental fact basic to the security of the Western Hemisphere, namely, that, since these republics' sole desire was to live at peace, they possessed the inherent right as a measure of continental self protection to have their adjacent waters free from the commission of hostile acts. Therefore the committee recommended that the Security Zone be considered as the open sea for the commercial activities and peaceful traffic of the ships of every state but that any belligerent act of any sort within the zone be prohibited. To prevent violation the American Republics were to adopt stringent measures as regards the control of belligerent merchant vessels. In case of violation by a belligerent warship or airship a joint investigation was to be made which should result in a collective protest to the aggressor belligerent and the denial by collective action of admission to their ports of the warship, or airship, of the belligerent guilty of the violation.

It could hardly be expected that such a drastic innovation in the curtailment of belligerent rights would be fully observed; nevertheless no violation as serious as the *Graf von Spee* incident occurred throughout the year. The principal protests made during the year concerned the sinking of the German freighter *Wakama* by its crew 15 miles from the Brazilian coast on Feb. 12 when sighted by a British war vessel; the scuttling of the German merchant vessel *Hanover* on March 9 when intercepted by a British war vessel; and the scuttling of the German merchantman *Idarwold* off the southern coast of Cuba early in December. Perhaps tending to rouse even greater indignation were the series of incidents occurring in November and early December when the British customs and contraband control stopped a number of Brazilian vessels and removed both goods and persons claimed to be German. It was clear by the end of the year that the Security Zone was still far from being observed as its sponsors desired.

THE MONROE DOCTRINE REVIVED

The possibility of the change of sovereignty of certain European colonies in the Western Hemisphere was envisaged at the Panama Conference of 1939, and a resolution declared that in such a contingency consultative action should be held. The German occupation of Denmark, followed by the quick and overwhelming victories over Holland, Belgium, and France, brought with it the possibility that the Danish, Dutch, and French colonies in the Western Hemisphere might be handed over to Nazi domination. Even before the conquest of France was consummated a joint resolution had been introduced into both the Senate and House, with the approval of the State Department, approving "non-recognition of the transfer of any geographic region in the Western Hemisphere from one non-American power to another . . ." This resolution was overwhelmingly approved by the Senate on June 17 and by the House on June 18. Thereupon the Secretary of State instructed our diplomatic representatives in Berlin and Rome to the effect that we would neither recognize nor acquiesce in any such transfer of territory in accordance with our traditional policy.

This was merely a restatement of a long established interpretation of the Monroe Doctrine when it was a unilateral policy of protection for the United States. But at the Buenos Aires Conference of 1936 the American republics, including the United States, had all agreed to consult with one another if the peace of the American continents should be threatened, and the Lima Conference of 1938 had provided the machinery to make the agreement effective. The Panama Conference of Ministers held in September, 1939, had already tested this machinery and found that it would work. This new and greater threat required further consultation and again the foreign ministers of the American republics or their accredited delegates were called into conference.

THE HAVANA CONFERENCE

The second meeting of ministers of foreign affairs of the American republics was held in Havana, Cuba, and lasted from July 21 to July 30, 1940. The importance of the conference was so evident that ten of the republics sent their ministers of foreign affairs in person. Secretary of State Hull represented the United States, and in his opening address to the conference he emphasized the dangers to nations who rely for their safety upon a desire for peace and upon avoidance of provocation. As a means of protection he urged a specific program of economic cooperation, the eradication of alien propaganda, and the establishment of a collective trusteeship to be exercised in the name of all the American republics over any European colonies where the existing status was threatened by cession or transfer, such trusteeship to be designed to further the interests and security of all the American nations as well as the interest of the region in question and the original sovereignty to be restored or independence declared when the conditions should permit.

In its organization the meeting set up three committees to deal with the agenda, namely, a committee on neutrality, a committee on preservation of peace in the Western Hemisphere, and a committee on economic cooperation. In all three approaches the conference achieved a noteworthy success. The sole difference of opinion related to the method rather than to the end desired.

The outstanding result pertained to the policy regarding foreign possessions in the Western Hemisphere. Two agreements seemed to cover any possible contingency. The first in the form of a convention condemned violence in all forms and refused to recognize force as a basis of rights. As regards colonies of non-American countries in this hemisphere, the American republics refused to recognize or accept any transfer or attempt to transfer any interest or right in this region. In case such an attempt should be made thus threatening the peace of the continent, provision was made for the taking over and administering of such region by an Inter-American Commission of Territorial Administration, such administration to be provisional in character and to continue only until such time as the region should be in a position to govern itself or be restored to its former status.

A supplementary declaration and resolution known as the Act of Habana authorized the creation of an emergency committee to cover situations arising prior to the ratification and promulgation of the convention. It also permitted any state in an emergency to act singly or jointly with others in any manner required by its own defense or in defense of the continent. Such a provision wisely prevented the possibility of a *fait accompli* before joint action might be taken.

A number of resolutions accepted by the meeting were aimed at subversive activities on the part of foreign governments or their agents. Such activities were vigorously condemned and various efforts for their control were adopted, such as restricting political activities of foreign diplomatic and consular representatives, precautionary measures regarding the issuance of passports, and the coordination of police and judicial measures for the defense of society and of each American state.

Other resolutions dealt with American neutrality, the extension of territorial waters and further measures of protection against hostile acts in such waters and in the security zone adjacent, and in further efforts toward the maintenance of peace and union among the American republics.

The quick acceptance of this very extensive program of both political and economic cooperation gave clear evidence of the acute realization on the part of the American republics of the need to stand together against the totalitarian menace.

NAVAL BASES FOR HEMISPHERIC DEFENSE

The possibility of totalitarian expansion into the Western Hemisphere brought up the whole problem of offshore protection. Although by its bases at Key West, Guantanamo, San Juan, and St. Thomas the United States could control most of the important passages to the Caribbean and the Panama Canal, the southern route passing north of Venezuela and Colombia was wholly open. Since Great Britain, France, and The Netherlands controlled all important potential and actual bases the United States and the Latin American states were stymied. However, the problem was most satisfactorily solved when the United States and Great Britain, by an exchange of notes dated Sept. 2, traded 50 destroyers for the right to lease and fortify eight naval bases in the Western Hemisphere. Of these bases six were of direct value to the protection of the entire Caribbean area. For example, the Bahamas and Jamaica would give the United States absolute command of the Florida Strait Passage and the Windward Passage to the Caribbean. Antigua, Santa Lucia, and Trinidad control the Anegada Passage and the hitherto open southern gateway to the Caribbean. In his message to the Congress President Roosevelt pointed out that "the value to the Western Hemisphere of these outposts of security is beyond calculation . . . . They are essential to the protection of the Panama Canal, Central America, the Antilles, Canada, Mexico and our own Eastern and Gulf Seaboards."

As proof that the action was equally for the protection of the Latin American Republics the Department of State instructed its diplomatic missions in these republics to notify the governments to which they were accredited that the United States had acquired the right to lease these naval and air bases "to strengthen its ability not only to defend the United States but in order the more effectively to cooperate with other American republics in the common defense of the hemisphere." The United States further stated that the facilities of these bases would be made available alike to all American republics on the fullest cooperative basis for the common defense of the hemisphere.

This program naturally raised the question as to certain additional bases off Latin American countries. Samana Bay on the northern coast of the Dominican Republic would control the important Mona Passage. It is understood that $3,000,000 of the $5,000,000 Export-Import Bank loan to the Dominican Republic will be spent in improving the harbor of San Pedro de Macornis which also could be used for naval vessels and sea planes and is only 44 miles from Samana Bay. President Calderon Guardia of Costa Rica announced that his government was willing to lease the Cocos Islands to the United States as an additional safeguard to the Panama Canal. Secretary Knox revealed that the United States had instituted negotiations with Ecuador for the construction of additional defenses on the Galapagos Islands.

The question, however, which raised the most discussion was the possibility of new naval bases in Uruguay. Not only did Spain oppose the establishment by the United States of bases in the Rio de la Plata section but Argentina and a group of Uruguayan nationalists were against it. Two cabinet ministers resigned as a result of the controversy. It was finally decided that Uruguay herself would build the bases, the United States merely affording financial and technical assistance. It was thought that the bases would be established at Punto del Este and at Montevideo.

MILITARY, NAVAL, AND AIR MISSIONS

A considerable increase in military assistance was afforded by the United States during the current year. Military missions sent to Guatemala, Nicaragua, and Argentina in 1939 were continued, and new missions were sent to Chile and Peru by 1940 agreements. The mission to Chile, arranged for by the agreement of April 23, was to furnish a military aviation commission for three years to act in an advisory capacity. The arrangement with Peru was signed July 31 and provided for the renewal of a naval mission and for the furnishing of an aviation mission to cooperate with the Ministry of Marine and Aviation.

Mention should also be made of the Joint Resolution, approved June 15, 1940, authorizing the Secretaries of War and Navy of the United States to assist the governments of the American Republics to increase their military and naval establishments. This bill would permit the

President at his discretion to authorize the construction of war vessels in American shipyards on behalf of any American republic and to have arms manufactured in our arsenals.

ECONOMIC COOPERATION

To coordinate the whole Latin American economic problem the Panama Conference of 1939 had authorized the setting up in Washington of an Inter American Financial and Economic Advisory Committee consisting of one expert from each of the American republics. This Committee engaged in working out a program to develop the natural products and industries of Latin America by means of capital from the United States. The specific achievements in this direction were the creation of the Inter American Development Commission of five members, set up on June 3, 1940, to plan and promote the development of new production facilities in the American republics, and the establishment of an Inter American Bank to foster cooperation in the spheres of long term development and of money and foreign exchange.

Perhaps of more immediate value to the improvement of commercial relations was an act of Congress increasing the capital and lending power of the Export-Import Bank by $500,000,000 and modifying its restrictions so that the bank might be of greater use to the Latin American states in marketing a part of their surpluses.

Warren Lee Pierson, president of the bank, made an extended tour throughout Latin America to obtain first-hand evidence of conditions and to make immediate efforts to ameliorate the situation. In Brazil, for example, he found the need for the construction of a modern steel producing plant, the machinery for which could be readily supplied in the United States. It was claimed a loan of $20,000,000 for this purpose, to which Brazil would add $25,000,000, would not only increase employment and prosperity in Brazil but permit her to produce more than half of her existing requirements for steel, within two years. The loan was made. In fact, loans of varying amounts were made to Argentina, Chile, Paraguay, Ecuador, Peru, Dominican Republic, and Costa Rica. In fact, Argentina not only received a $60,000,000 loan from the Export-Import Bank but also a $50,000,000 loan from the United States Treasury's gold stabilization fund with a view to facilitate American sales in Argentina by furnishing the South American Republic with necessary dollar exchange.

Further evidences of productive economic collaboration were shown by the signing of a contract between the Reynolds Metals Company of Washington and the General Mining Company of Brazil for the purchase of 100,000 tons of bauxite. In order to help further this project, the American Company was given an R.F.C. loan of $15,000,000 to build a new aluminum plant in the Tennessee Valley. Another example was the contract between the United States and Bolivia for the annual purchase of sufficient ores from Bolivia to produce 18,000 tons of fine tin. This will require the construction of smelters in the United States and help relieve the present dependency upon Asiatic and European sources.

THE COORDINATING COMMISSION

The ramifications of relations with Latin America became so complicated that in August President Roosevelt named Nelson A. Rockefeller to the National Defense Advisory Commission as Coordinator of Commercial and Cultural Relations between the Latin Americas. The Rockefeller Committee is essentially a liaison organization with the Export-Import Bank, the Departments of Agriculture and Commerce, the Division of American Republics and the Division of Cultural Relations in the Department of State, and the Pan American Union. Already this Committee has initiated surveys of ocean and air transportation, communications, is developing press and radio sections, is aiding in exchanges of professors and students, is working for reduced postal rates for books, in fact is attempting to follow up the Latin American activity of every department of the government and of private organizations as well.

As a part of the program to improve cultural relations, exchanges of professors and students were begun, some sponsored and financed by the governments on a reciprocity basis and others by universities and foundations. It was expected that only a small beginning had been made in this direction and that far greater results could be looked forward to in subsequent years.

RELATIONS WITH MEXICO

As in the past the diplomatic relations between the United States and Mexico were by far the most difficult in the Latin American field, largely due to the failure to settle the oil controversy. The matter was reopened in 1940 by an informal memorandum delivered by Ambassador Najera to Secretary Hull on March 16, in which it was stated that there existed no divergence of opinion between the two governments since the right of expropriation was beyond discussion and Mexico was agreeable to the payment of just compensation to the expropriated companies.

In his reply dated April 3, 1940, Secretary Hull took decided exception on the ground often stated previously that the legality of expropriation was contingent upon adequate, effective, and prompt compensation. He then pointed out the continual failure of Mexico to pay agrarian claims arising prior to 1927 and certain general claims dating back some 70 years. As a satisfactory solution Secretary Hull proposed to submit to arbitration all the questions involved in the oil controversy and to clothe a tribunal with authority not only to determine the amount to be paid but also the means to make the payment effective.

The Mexican Government in its reply dated May 1 blamed the failure to liquidate its obligation upon the oil companies, which it was claimed had systematically refused to allow the value of their properties to be determined. As to referring the entire matter to arbitration the Mexican Government considered arbitration incompatible in this case since the matter in dispute was domestic in nature and already nearing solution. Foreign Minister Hay thereupon declared that a private and direct settlement had been made with the Sinclair interests, which represented approximately 40 per cent of the investment of American nationals in the oil industry.

This settlement was a purchase agreement for 20,000,000 barrels of crude oil in four years and a compensation agreement providing for the payment of $8,500,000 over a period of three years. Incidentally, according to American estimates, the Sinclair group represented only ten per cent of American oil interests.

No further action was taken by either side partly since President Cárdenas, who had confiscated the oil properties, did not intend to run for reelection and the matter could well be left until after the July elections. Both candidates, Manuel Avilo Camacho and Juan Andreu Almazán, were decidedly further to the right than President Cárdenas and might be more willing to compromise. As was expected General Camacho, who was backed by the administration, won by a large majority, and although the Almazanistas threatened a revolution, it never materialized.

Even before the inauguration on Dec. 1 a swing to the right was evident when Communistic anti-Yankee Vincente Lombardo Toledano, who helped to engineer the oil expropriation, was forced out of the secretaryship of the Confederation of Mexican Labor. Early in November President Cárdenas announced that, as a gesture of friendship to the United States, oil and scrap iron would not be sold to Japan, and he expected an early definite and satisfactory settlement of all pending questions between Mexico and the United States. The United States thereupon announced that Vice President-elect Henry A.

Wallace would act as President Roosevelt's special representative at the ceremonies of the inauguration of General Avilo Camacho as President of Mexico on Dec. 1. This was a double gesture of good will, first, by recognizing Camacho as duly elected president and, secondly, by sending the second highest official in the United States, who had long been an ardent advocate of the Good Neighbor policy.

In as much as just before his term expired President Cárdenas sent a bill to the Congress asking $12,000,000 to bolster the operating deficit of the oil industry due to the large increases in salaries and the huge falling off of sales, it was clear that a settlement could be expected in the near future.

CONVENTION WITH THE DOMINICAN REPUBLIC

A convention between the United States and the Dominican Republic was signed in Washington, Sept. 24, 1940, which superseded the convention of 1924 relating to the collection and application of customs in the Dominican Republic. Under the provisions of the new convention the Government of the Dominican Republic would resume the collection of that country's customs revenues which under the 1924 treaty, had been collected by an American appointed by the President of the United States. The new convention also abolished the General Receivership of Dominican Customs. The convention provided that a depository bank would be selected by mutual agreement between the two governments which would be the sole depository of all the revenues of the Dominican Republic. By this convention the United States withdrew its last vestige of control over any of the Caribbean republics and took one more step on the road of the Good Neighbor policv.

UNITED STATES RELATIONS IN THE ORIENT

By Herbert H. Gowen

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GENERAL

Circumstances in 1940 make it unusually difficult to write an intelligible description of American policy in the Orient. Some will, too readily perhaps, link this with the exigencies of domestic policy in an election year. Others will view it as a reflection of interest in the European conflict and our desire to assist Great Britain, a desire obviously the greater since the announcement of Japan's alignment with the Axis powers. Still others will interpret it as indicative of Washington's aim to assist the Chungking Government, an aim supported by public opinion as analysed in various unofficially conducted polls.

All will agree that the year has been one of tension between Japan and the United States, increased at the present time to a point of crisis. Some, however, may feel that this tension might have been eased had diplomacy on either side been less governed by legalism than by sympathetic awareness of the problems involved. It is probably fortunate that the space available for this survey makes it impossible to do more than present objectively the highlights of our Government's dealings with the Orient. To attempt more would, in view of the possibilities of the coming months, lead only to frustration and confusion.

JAPANESE-AMERICAN TRADE TREATY ABROGATION

In January 1940 a large number of the claims made by the United States against Japan were still unsettled, but Tokyo felt itself justified in asserting that, with the approaching inauguration of Wang Ching-wei as head of a Central Chinese Government at Nanking, peace was possible and with it improvement in American-Japanese relations.

Actually events belied this optimism. The Abe Cabinet at Tokyo was on its last legs; the Chungking regime remained bent on persuading the United States to break off relations with Japan; and, especially significant, the date, Jan. 26, was approaching for the abrogation of the Japanese-American Trade Treaty of 1911, denounced six months earlier. In the interval preceding abrogation neither government succeeded in suggesting an acceptable substitute. Furthermore, there were powerful interests on this side of the Pacific pressing for a ban on exports of military material to Japan and a good deal of "big navy" talk, involving threats of a new naval race, added to the war of nerves on both sides of the ocean.

Midway in January came the expected fall of Premier Abe, and Admiral Yonai, "a surprise appointment," succeeded. Arita, the new Foreign Minister, led off with a pledge to eliminate friction with the United States and for a brief while there was hope that this pledge might be fulfilled, especially as Japan was plainly war-weary and the merchants were voicing desire for a policy of "peace, retrenchment and de-control."

Unfortunately, Japanese diplomacy failed to stave off the treaty abrogation, and Washington was content to mark time except for the announcement that tariff arrangements would remain on a day-to-day basis. With this, Japan presently abandoned talk of a new pact and prepared to strengthen trade ties elsewhere. A further element of discord (though only affecting the United States indirectly) arose through the action of the British navy in taking off a number of German sailors from the *Tatuta Maru*. Japanese annoyance over this incident coincided with the national chagrin over the treaty abrogation. And, to make matters worse, home industry was at this time hampered by shortage of power due to abnormal drought conditions.

Nevertheless, on Feb. 1, Foreign Minister Arita, in an important speech before the Diet, denied any Japanese intention of ending American rights in the Orient or of interfering with the legitimate interests of third powers in general. But, when a member suggested the wisdom of the United States withdrawing her nationals, Arita replied ambiguously. At the same time the Foreign Minister attempted to meet criticism in America of Japanese policy in the South Seas by declaring that his country needed not territory in these regions but a share in their resources.

THE QUESTION OF EMBARGO

The same month, Feb. 11, witnessed the celebration of the 2,600th. anniversary of the founding of the Japanese Empire, an event which had been eagerly anticipated and which was to have been, but for untoward circumstances, the occasion for a great International Exposition. Instead, the national jubilations found but faint echo overseas. American newspapers were particularly chary of their felicitations. It was perhaps only coincidence that on Feb. 14 the Senate raised the question of embargo, but the proposal encountered difficulties in Committee and was ultimately postponed.

JAPANESE PUPPET GOVERNMENT AT NANKING

In March occurred another event to which Japan had looked forward hopefully but which likewise met with a cool, if not hostile, reception in the United States. This was the inauguration of Wang Ching-wei at Nanking as head of a pro-Japanese Central China administration. Wang, as a favorite disciple of Dr. Sun and a former associate of Chiang Kai-shek, had looked forward to the restoration of peace in a united China in cooperation with Japan. But Washington lost no time in announcing its intention to ignore the event and took the opportunity to strengthen the hands of Chiang with a new loan of $20,000,000, an act resented in Tokyo as "disagreeable." Moreover, American naval manoeuvres at this time were interpreted in Japan as an effort to hamper the carrying out of the new East Asia policy.

U. S. DEMAND FOR STATUS QUO IN EAST INDIES

In the situation as so far described there were more than enough complications, but April brought fresh sources of discord, mainly due to German conquest of the Netherlands and increase of pressure on France. Uncertainty as to the future of the Dutch East Indies and of French Indo-China brought from Secretary of State Hull a statement demanding the preservation of the *status quo* in these regions. The Japanese Foreign Minister made simultaneously an almost identical demand, but it remained a matter for surmise as to whether the two governments intended the same thing.

JAPANESE PRESSURE ON INDO-CHINA

For a few days the outlook seemed to show improvement, and Japanese especially grew optimistic as to possible negotiations. But optimism was rudely dispelled when Japan began to put pressure on the Indo-China Government to stop the flow of supplies reaching Chungking by that route. While the United States steadily opposed pressure from fear that Japan might enforce her demands by military action, Premier Yonai was reaffirming the Japanese policy as one of continued support of Wang Ching-wei, of non-involvement in the European conflict, and of the maintenance of the *status quo* in the Dutch colonies. In Indo-China France conceded to Japan the denial of military supplies to Chiang and, about the same time, turned over part of the defence sector of the International Settlement and the French Concession. Encouraged by these diplomatic successes, Japan pressed Great Britain to close the so-called Burma Road, the one remaining trade artery open to Chungking from the south. Washington opposed the closure as an interference with legitimate commerce, but, as a matter of fact, the route during these months was unusable because of the rains.

TEMPORARY CLOSING OF THE BURMA ROAD

While these questions were still under debate, another cabinet change occurred in Tokyo, introducing fresh elements of tension. Prince Konoye who, disgusted with politics, had retired from office 18 months earlier now re-entered the field, proposing a new united party system somewhat on fascist lines and less disposed than its predecessors towards appeasement. Yonai's supercession, July 16, was hailed as the triumph of an extreme nationalism, though Konoye had hitherto been regarded as a moderate. The cabinet change created something of a scare among Americans, especially in Washington, and many Americans resident in the Orient were taken off from Hongkong to Manila as the scare spread to British subjects. Somewhat to American surprise, and against the opinion of Secretary Hull, Great Britain went so far in the direction of placating Japan as to agree to the closing of the Burma Road for three months from July 12, a concession which, as noted above, meant little in the rainy season. But a condition was specified, namely, that Japan in the meantime should make every effort to end the Chinese "incident."

AMERICAN EMBARGO

There might have been detected in Washington some difference of opinion as to handling the situation. On July 19 Under Secretary of State Sumner Welles maintained, in an important speech, that no question as between Japan and America was incapable of settlement by negotiation. But this outstretched olive-branch was withdrawn a week later when a new ban was imposed on export to Japan of petroleum, petroleum products and scrap-iron, apart from special license. In Japanese eyes the President had "again demonstrated his conspicuously unfriendly and challenging attitude towards Japan." Of course, in the ban itself no mention was made of Japan; its avowed purpose was the conservation of material needed for national defence.

AMERICAN ELECTIONS AND THE ORIENT

It was in this atmosphere (further tainted by wide-spread outbreaks of spy-mania) that the major political parties of the United States met to select their respective candidates for the Presidency. The Democrats declared: "We will not participate in foreign wars and we will not send our Army, Navy, or Air Force to fight in foreign lands outside of the Americas, except in case of attack." To similar effect was the Republican declaration: "The Republican party is firmly opposed to involving this nation in foreign wars." Again, the Democratic pledge "to extend to (liberty-loving peoples wantonly attacked) all the material aid at our command, consistent with law and not inconsistent with the requirements of our own national defense" matches the statement that Republicans favor "the extension to all people fighting for liberty, or whose liberty is threatened, of such aid as shall not be in violation of international law or inconsistent with the requirements of our own national defence." In respect to either platform the comment applies: "The desire of the American people to remain at peace is so deeply sincere and so nearly unanimous that no candidate of either party could mistake this mandate."

SHANGHAI

This last statement is illustrated by American reaction, official and popular, to more than one incident in the months preceding and following the election. The expectation that the closing of the Burma Road would provide a solution for the Sino-Japanese problem was unfulfilled. Japan's offer of terms to Chungking was rejected, and Washington was displeased at British tendencies towards appeasement. Again, America's denial of important exports to Japan only strengthened Japanese determination to secure these from the Dutch East Indies and to wrest further concessions from Indo-China. Extremists, indeed, urged that Japan should now free herself entirely from economic dependence on the Western world. Yet, with so much unsettled and even menacing, at this juncture there arose, like a new boil out of an old one, controversy over that part of the Defence Sector at Shanghai about to be vacated by Great Britain. In preliminary parleys the combined votes of Great Britain and the United States gave the sector to the Americans. But Japan protested, and presently the disputed territory was divided, with seven blocks along the Bund (coveted by both sides) assigned to the United States and the western district to Japan. There was still dissatisfaction, with Japanese extremists urging expulsion of all foreign forces. Ultimately Washington cabled Admiral Hart to place the contested territory in charge of the Shanghai Volunteers pending the outcome of further discussion and final adjudication.

JAPAN'S DIPLOMATIC PURGE

The summer, however, did not end without still further exacerbation. The Japanese Foreign Office, on its side, inaugurated a diplomatic "purge" whereby 40 representatives (including Horinouchi, the ambassador at Washington), were recalled, evidently in preparation for a stiffened policy. In Washington the State Department, through Secretary Hull, issued a drastic warning to Japan over the entire course of action in Eastern Asia. So far, however, from this "warning" (which Horinouchi described as "blunt") having ameliorative effect, fresh Japanese efforts followed to secure the raw materials and trade outlets of which she had been deprived by American action from other sources.

THE RELIGIOUS QUESTION

The next crisis, long foreseen, appeared in ecclesiastical circles. For some time the Christian Churches of Japan (possibly under some Government prompting) had been restive over the dominance of foreigners in the financing and administration of Japanese missions. Some religious bodies, such as the Roman Catholics, anticipated matters by devolving a large share of administration upon native ecclesiastics. In the Episcopal Church the foreign bishops, several of whom were at this time abroad, seem to have been caught napping, and their resignations were requested at a meeting of the House of Bishops of Nihon Sei Kokwai. The objective, of course, was not the exclusion of foreign missions but rather the hastening of the long desired autonomy in administration and freedom from foreign financial control.

INDO-CHINA AND THE BURMA ROAD

September opened with new American concern over Franco-Japanese arrangements in Indo-China, with another warning from Secretary Hull that the effect of Japanese action on American public opinion would be "unfortunate" and also with rumors of joint Anglo-American conversations over American use of Singapore as a naval base. But, with the Vichy Government yielding to Japan in the matter of her bases in Indo-China, Tokyo had no difficulty in ignoring the American protest. Nevertheless, the tension was such that Admiral Stirling felt himself justified in declaring: "Our relations with Japan are now frankly antagonistic." Yet Japanese statesmen continued to pledge the continuance of the "Open Door" while pleading the right to criticise Washington for inconsistency in that, while arguing for an Open Door in the Orient (this was denied Japan in the Occident) and that the Monroe Doctrine insisted upon for the Western Hemisphere was refused Japan in Asia.

The closing of the Burma Road by Great Britain had, as noted, been coupled with the condition that Japan would bring her campaign to a speedy end. This condition was easier to suggest than to fulfil, since Chiang held stubbornly for a complete evacuation of all occupied territory, including Manchukuo, and in this position was supported by Washington. It was, therefore, not surprising that, the rains ended, Great Britain, with Secretary Hull's approval, announced the re-opening of the highway. This took place on Oct. 17, over the strong protest of Prince Konoye, who viewed the action as further proof of American interference with Japanese policy. He declared that the road would be bombed from the new bases in Indo-China.

U. S. EMBARGO ON SCRAP STEEL AND IRON

Almost coincidentally came the new Roosevelt embargo on the export of all scrap steel and iron to any country except in the Western Hemisphere and Great Britain. It made certain, what had long appeared probable, that Japan would be driven, for economical reasons, into an alliance with the Axis Powers, however reluctant Japanese leaders were to take this course. Hence, while even yet many were pleading for American-British-Japanese cooperation, more realistic negotiations were resulting in the Three-Power Alliance of Germany, Italy, and Japan. The Tokyo Foreign Office took pains to insist that this alliance was intended to make for peace by preventing further spread of the war, but it was a blow to the hope of American-Japanese understanding, and all friends of democracy saw regretfully Japan ranged with the totalitarian powers. A further ominous sign to many was the effort of Japan to secure a non-aggression pact with Russia by the sending of Tatekawa as special envoy to Moscow. It mattered little that Great Britain and the United States were making similar overtures; the fear was that the Three-Power Pact might too easily become a Four-Power Pact. Japan was at the same time, with some success, negotiating with the Dutch East Indies for a large augmentation of her supply of oil.

AMERICANS LEAVE ORIENT

Happily the Presidential campaign passed with little discussion of foreign policy of a partisan character, at least so far as the Orient was concerned. Both parties, in their more formal utterances, agreed in the desire to give all possible aid to the Chungking government, while declaring against use of American troops on foreign soil. Of course the saving clause "except in case of attack" was always used, but history shows that the term "attack" is sometimes as difficult to define as the term "defence." Yet the campaign was not without its scares, in the Orient and at home, through the advice tendered by the State Department urging all Americans in the Orient who could do so to return home. This advice caused much dislocation of business and family life and by the Japanese was viewed with "surprise."

SIGNS OF LESSENING TENSION

During the closing months of the year, together with considerable concern over the possible effects of the Berlin-Rome-Tokyo Treaty, there were some signs of relaxed fear of Japan in America. The knowledge that any incident due to an indiscreet word might precipitate an wholly undesired catastrophe doubtless made for caution. At any rate, incidents became matters of infrequent occurrence, and it was a hopeful sign that the newly appointed ambassador to Washington, Admiral Kishisaburo Nomura, was recognized as a tried friend of the United States and well acquainted with its people. His first public utterance as ambassador, on Nov. 28, reaffirmed the conviction of Under Secretary Welles that there was no question as between Japan and the United States incapable of solution by negotiation. It was a good sign, moreover, that on Dec. 16 a lengthy meeting took place between Ambassador Grew and Foreign Minister Matsuoka which led many to believe that the policy of negotiation had been adopted. Yet, a week later, a clash occurred between these two at a farewell banquet to Admiral Nomura given by the Japan-American Society at Tokyo which revealed that negotiations had so far made but little headway. Matsuoka made the declaration on this occasion that "the fate of China is largely a question of sentiment to Americans. To us it is a truly vital issue affecting the very existence of our Empire." To this Mr. Grew replied pointedly: "I think I must relieve the minister of his misapprehension that the interest of Americans in China is sentimental." There could have been no more conclusive evidence of the fact that, in Asia as in Europe, the policy of appeasement is for the present ruled out of practical politics.

THE SITUATION AND THE OUTLOOKS

The desired solution, it is feared, is still unreached. Japan, in cooperation with Nanking and Hsinking, is committed to the creation of a "New Order" in Asia which involves the downfall of Chungking. Chungking, meanwhile, remains deaf to all overtures from Tokyo for the ending of the war. In this attitude Chiang is supported by Great Britain and America, partly out of unwillingness to see Japan freed for further adventure. There is some irony, undoubtedly, in the fact that Nov. 30, the day which witnessed the signing of a treaty between Japan and Nanking, saw also the promise of an American loan of $100,000,000 to Chiang. To Japan it seems clear that the United States is committed to the policy of thwarting Tokyo economically, diplomatically, and possibly by still stronger measures. So the situation remains at the year end.

It is not our purpose to forecast the future, but we may well ask consideration for possibilities ahead. Must the deadlock continue until, through the action of power pressure above a crust beneath which dangerous gases accumulate, the explosion occurs? Or, with the apparent drift of America towards the European conflict, must we, by the terms of the Triple Axis Treaty, become involved in a two-ocean war? Or, once again, is it still possible for statesmanship to follow up the declarations of Under Secretary Welles and Admiral Nomura by actual negotiation of differences, negotiation which would secure for the entire Pacific area, without sacrifice of honor, a lasting peace? Such solution may demand from us much in the way of self-sacrifice, including possibly our present privileged position in the Orient, but an honorable peace, involving the cooperation of Japan with a united China, and setting us free to trade with both, would make almost any sacrifice worth while.

THE UNITED STATES AND THE NEAR EAST

By Wilbur W. White

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IRAQ

On Feb. 22, 1940 there was a cabinet change in Iraq. General Nury es-Said, the former prime minister, was again appointed premier and acted as foreign minister. Throughout the year the engineering project was continued for protecting the peoples in central Iraq against the overflow of the Euphrates River. When completed this project will add immensely to the safety of those who are annually threatened by the spring floods.

Foreign policy, of course, was of primary importance throughout the year. Conversations were held in early April with representatives of King Ibn Saud, with whom the country has a treaty of friendship. According to the communiqué issued after the meeting, the two states planned to continue the policy of collaboration on affairs in which their mutual interests are involved. In late June the prime minister went to Ankara to discuss general problems and particularly the Syrian situation with Turkish officials. Apparently here again there are problems of mutual interest which will be jointly considered from time to time.

SAUDI ARABIA

In addition to the conference with the premier of Iraq there was one main incident in the war which affected Saudi Arabia. On Oct. 19 Italian bombers raided the area of the upper Persian Gulf. Most of the damage, which was not excessive, was done to the refineries in the Bahrein Islands, but some bombs were dropped on oil properties in Saudi Arabia. Bahrein is a British protectorate, but Saudi Arabia is independent and thus far neutral. Both oil projects are owned by American companies—Standard Oil of California and the Texas Corporation. The companies asked the state department to lodge a strenuous protest with the Italian Government because of the attack in the neutral territory of Saudi Arabia.

SYRIA AND THE LEBANON

Syria and the Lebanon were the focus of much of the war-time tension in the Near East, both in themselves and in their relation to the rest of the Arab world. During the first half of the year, when France was still in the war, the mandate boasted a strong contingent of the French army which was highly mechanized and without doubt would have been very effective. With the French withdrawal from the war, however, the situation in Syria and the Lebanon became anomalous, and during the last half of the year the countries became a kind of political vacuum against which the pressures came chiefly from without, but within which there were also potentialities of an explosion. Within the countries the feelings of the people were divided among a small group with Fascist leanings, a large independence movement, and a considerable group of anti-Axis followers who range in opinion from actively pro-British to followers of de Gaulle, and on to those who advocate a wait-and-see policy while maintaining their peculiar *status quo*.

As a part of the Syrian question there again arose a feeling of the need, and at this time the possibility, of some kind of a union of the Arab states. This was construed as not precluding independence and as being far preferable to domination by either the Axis, France, or Great Britain. Friction between personalities and groups, however, prevented any success in this direction.

The British played upon the sympathies toward them which they found within the countries, and many thousands from the French forces left to fight with British, but the chief pressure from the outside came from Italy. Italian prestige in the Near East has never been high, and the Arabs were inclined, even before the Italian losses in Egypt and Libya, not to fear pressure from Italy alone. The Syrians, however, could not entirely dismiss such pressure, particularly in the face of German backing.

In the early autumn a series of reports came from the Near East outlining a number of Italian demands upon Syria and the Lebanon. These involved the handing over of French submarines and planes and naval and air bases, and a general pro-Axis orientation. The French officials were successful in denying these demands, and they were not without grounds for their own position. They pointed out that undue concessions to Italian pressure might well turn the mandate into the de Gaulle camp. The uncertainty of the country was further accentuated by the death in late November of Jean Chiappe, the new French High Commissioner, whose plane was shot down on his journey from France. Chiappe was expected locally to have forced the territory closer into line with the Vichy Government, and many of the inhabitants looked upon his death as providential.

The position of the countries from the viewpoint of their neighbors was naturally extremely important. They form an admirable base from which to attack both the oil fields of Iraq and the Suez Canal. The British were able apparently to prevent access to the area by sea, but there remains the possibility of a German land drive across Turkey. All of the neighbors of the mandate, therefore, were quite willing to keep in the closest touch with both official and unofficial leaders within the countries to assist in a defense against Axis control of Syria and the Lebanon either directly or through Vichy.

PALESTINE

In Palestine, as in the other countries in the Near East, the main conditioning factor throughout the year was the war. With Italy's entrance into the conflict in June the problems here as elsewhere in the neighborhood were intensified. But in Palestine, as perhaps in no other eastern country, the war proved to have an advantageous characteristic, namely, the drawing together of the Jews and Arabs within the country in the face of a common threat. The shortcomings of the British administration of the mandate have been far outweighed by the threat of Axis aggression, and the year in Palestine witnessed a degree of cooperation between the Arabs and the Jews which has not existed since 1918.

One of the early effects of war was noticeable in Palestinian trade where the difficulties of export of citrus fruits particularly brought on a depression that eclipsed even that of the immediately preceding years of internal strife. By mid-January the price of citrus fruits had dropped 50 per cent, and later in the year the whole economic situation was so bad that the Palestinians saw their only hope in an appeal to the British Government to buy up the entire year's crop.

In one respect the British adhered to their policy of limitation of land purchases by Jews by defining on Feb. 28, as announced in the White Paper of May 18, 1939, large areas in which land sales to Jews were to be prohibited or restricted. The Jews were bitterly disappointed in this action which was held by some to have been taken to prevent Arab disaffection. Almost immediately thereafter, however, the Jews and Arabs developed a greater mutual friendliness, and throughout the spring there was evidence of growing cooperation in the face of the threats of war.

With the Italian entrance into the war defense measures were increased, resulting in even closer relations of the two Palestinian groups, and amazing success was achieved in the enlistment of a regiment composed equally of Arabs and Jews. Italian bombings of Palestinian cities, particularly the serious attacks on Haifa and Tel Aviv, were instrumental in bringing home to both peoples the necessity of working even more closely together. By Oct. 1 the quota for the original regiment was closed and plans were being made for the establishment of other similar units. The importance of Jewish-Arab friendliness as evidenced by the joint assumption of responsibility for the defense of the country can not be overestimated. The British hope that it will lead to a post-war understanding that will permit a definite settlement of the Palestinian problem.

The Jews themselves in mid-November began an attempt to unify all of the Jewish parties, a step which is secondary in importance only to the Jewish-Arab rapprochement. Whether the Socialists and Revisionists can be brought into this united front is problematical, but even if this can not be accomplished, the unification of all other groups will be an event of immediate importance.

There was one indication in late November that the British policy on immigration in Palestine might be tempered with mercy, in the treatment of the refugees from the *Patria* which sank in Haifa harbor on Nov. 25. The British planned to require that these refugees move on to some other British colony, but on Dec. 5, the Palestinian administration, in view of the suffering of the passengers, announced that they were to be permitted to remain in Palestine.

TURKEY

The beginning of 1940 found the Turkish Republic still suffering from the series of earthquakes which broke upon it late in 1939. This disaster was repeated to a lesser degree during the last of July. During the year also Turkey, as did the other countries in the Near East, suffered a loss of trade due to the war. It was hoped, however, that trade to the east would increase as a result of the completion on July 16 of the railroad from Turkey to Iraq.

Throughout 1940 Turkish foreign policy was characterized by an attempt to stay out of the war and by a friendly firmness against pressure which would sway her from her status of non-belligerency.

Three critical periods occurred, during late February, the middle of June, and in late October and early November. In each case the Turks exhibited firmness and took steps to prepare for possible attacks. In each case also, due apparently in part to this firmness, the republic was spared involvement in the war.

With Bulgaria the Turks conferred from time to time, and on Jan. 20 the two governments affirmed their "concordance of views" on the international situation. The Turks made plain, however, their stand in case of possible attacks by Bulgaria, and issued outspoken warnings against any Bulgarian invasion of Greece after the latter became involved with Italy.

With Russia, Turkey attempted to maintain her long-standing friendship. Although Russian technicians left the country in late February and there were reports of clashes on the Soviet-Turkish frontier, it was stated that

Moscow was willing to resume the conversations broken off the preceding autumn. The Turkish prime minister, in a broadcast the last day of February, re-affirmed that relations with the Soviet Union were as amicable as ever. There were threats, after Italy's entrance into the war, that Russia would demand special rights at the Straits, but such steps were not successfully pressed. In fact Turkish firmness in the face of the Nazis gave some indication that the Turks were free from the fear of a Soviet attack in case they became involved with Germany.

The main problem of Turkish policy was that of relations with Germany. With that power the Turks were willing to be friends, but they refused to be intimidated. In June a trade pact was negotiated between the two countries, but Turkish firmness was evidenced in the seizure of the Krupp works in Turkey on Feb. 22 and in a series of official statements at critical junctures. For example, a government broadcast of Oct. 11 declared a German attack of Egypt through Turkey would be resisted and that the road across Anatolia was guarded by 2,000,000 bayonets. Two weeks earlier trade with Germany was practically stopped, in spite of the recent treaty, because of Germany's inability to make deliveries. When in late October Ambassador von Papen returned to Berlin for instructions, President Inonu sounded the keynote of Turkish policy. He informed the national assembly on Nov. 1 that Turkey would follow its policy of non-involvement, would maintain friendship with Russia, but would remain loyal to its obligations, and would fight instantly if attacked. During the year when war threatened, the Turkish government made its policy clear and almost instantaneously took the necessary steps to implement that policy.

EGYPT

The chief internal problem, as well as the main problem of foreign policy throughout the year, was the relationship of the country to the war. As in the other countries in the Near East this position was rendered critical by the entrance of Italy, but even before that time the menace, chiefly from Italy, was understood to exist. As early as April the Egyptian Government took steps toward offsetting the influence of both German and Italian spies with the country, and during the first week of June about 700 possible "fifth columnists" were interned. On May 13 the government began moving civilians from the towns along the Libyan border which, in fact, did subsequently become centers of military action, and on June 8, 6,000 children and old people were removed from Alexandria in anticipation of the conflict.

Shortly after the Italian declaration the Egyptians broke off diplomatic relations and took certain subsequent steps such as the seizure of Italian fishing vessels at Alexandria and the confiscation or sequestration of other Italian property in the country. Until the end of the year, however, Egypt remained aloof from active participation in the war, though this policy involved a number of cabinet changes during the latter half of the year.

Between June 21 and 29 Ali Maher Pasha was replaced by Hassan Sabry Pasha with a coalition cabinet including all parties but the Wafd. There were minor changes on Aug. 27, but on Sept. 21, after several days of debate, four members of the Saadist party resigned because they wished a declaration of war. On Nov. 14 the premier died of apoplexy while reading the speech from the throne, and he was succeeded by Hussein Sirry Pasha who was given a vote of confidence on Dec. 26 after considerable debate.

The policy which has been pursued throughout these changes is one of assistance to Britain but without formal entrance into the conflict. It appears anomalous in the light of the Italian invasion but indicates an unwillingness by the Egyptians to participate in the war, at least until the Nile valley is threatened.

On Aug. 8 the British Government offered to buy the entire Egyptian cotton crop, a move most welcome in the whole country. The loss of other trade and the importance of cotton to Egypt made this step of prime significance to the economy of the country.

For three months after the Italian declaration the war hardly entered Egypt proper, though there were both land and sea engagements in the vicinity. Numerous raids took place along the borders of Ethiopia and the Sudan, though these were less conclusive than the seizure of British Somaliland by the Italians during the first three weeks of August. Naval battles also took place from time to time in the Red Sea and more especially in the eastern Mediterranean. The results almost without exception favored the British, and by autumn the Italians no longer really disputed the sea lanes in the vicinity of Egypt.

The most spectacular campaign, however, was the Italian invasion into northwestern Egypt and the subsequent British counter-attack. The Italian drive began Sept. 13 and in less than a week had penetrated beyond Sidi Barrani to a distance of some 70 miles inside the Egyptian frontier. There the Italians paused for some weeks, apparently consolidating their position preparatory to a further drive eastward. Before this drive materialized, however, the British delivered an unexpected counter-attack, beginning on Dec. 9. With the same lightning strokes which had characterized the Italian invasion, the British repelled their enemy. Within a week they had forced the Italians out of Egypt. By the end of December they were beseiging Bardia and preparing to advance to the west. The British drive differed from that of the Italians in that the British took almost 40,000 prisoners and quantities of military stores in their advance, and the British victory removed the immediate Italian threat to the Suez Canal and was a major set-back for the Axis.

FOREIGN SERVICE OF THE UNITED STATES

By Nathaniel P. Davis

Division of Foreign Service Administration,
Department of State

ADMINISTRATION

Regulations.—The administrative regulations issued in pursuance of the Foreign Service Act of Feb. 23, 1931, as amended, are to be found in Executive Order No. 8696 of April 18, 1940. These regulations implement the act by providing, among other things, for a Board of Foreign Service Personnel, a Board of Examiners and a Board of Foreign Service Officers' Training School.

Board of Foreign Service Personnel.—The duties of this Board are to examine into the character, ability, efficiency, experience, and general availability of all members of the Foreign Service with a view to promotions, transfers, and separations; to consider controversies or delinquencies among the Service personnel, and to recommend for promotion to the grade of minister those officers who have shown special capacity. The Board is composed of not more than three Assistant Secretaries of State, an officer of the Department of Commerce and an officer of the Department of Agriculture. One of the Assistant Secretaries of State shall be the Assistant Secretary who has supervision over the Division of Foreign Service Personnel, and he shall be Chairman of the Board. The members of the Departments of Commerce and Agriculture shall sit only when nominations and assignments of Commercial and Agricultural Attachés, the selection or assignment of Foreign Service officers for specialized training in commercial or agricultural work, or matters of interest to those Departments, are under consideration. The Chief of the Division of Foreign Service Personnel and one other member of the Division may attend the meetings of the Board, but are not entitled to vote in its proceedings.

Board of Examiners.—The duties of the Board are to hold examinations of applicants for admission to the Foreign Service. The examinations, which shall be both written and oral, are open only to Americans of good standing between the ages of 21 and 35, specially designated by the President for examination, who have been citizens of the United States for at least 15 years, who are physically, mentally, and temperamentally qualified for the proper performance of the duties of the Foreign Service, and who are not married to aliens. American clerks who have rendered satisfactory service in the Foreign Service for a period of five years immediately preceding the submission of their application for appointment as a Foreign Service officer may be exempted by the Board from written examinations and may be granted certain exceptions concerning age limitations. The Board is composed of three Assistant Secretaries of State, an officer of the Department of Commerce, an officer of the Department of Agriculture, the Chief of the Division of Foreign Service Personnel of the Department of State, and the Chief Examiner of the Civil Service Commission.

Foreign Service Officers' Training School.—The school is maintained in the Department of State for the instruction of new appointees to the Foreign Service, and is under the direction of the Board of Foreign Service Officers' Training School.

Board of Foreign Service Officers' Training School.—The duties of the Board are to act in all matters concerning the functions of the school, with the approval of the Secretary of State; to select the director of the School from among the officers of the Foreign Service with the approval of the Secretary of State, and in its discretion to select other instructors from among the qualified officers of the Department of State, the Foreign Service, and executive departments of the Government, and other available sources. The Board is composed of the members of the Board of Foreign Service Personnel, the Chief of the Division of Foreign Service Personnel, and the Director of the School.

PERSONNEL

Changes.—During 1940 one examination was held for appointment to the American Foreign Service. Persons to the number of 483 took the written tests, which were held Sept. 16, 17, 18, and 19, and those who passed these tests will present themselves for the oral examination early in 1941.

The year 1940 was one of adjustment of Foreign Service personnel assignments to provide for shifting needs arising chiefly from the war in Europe. Following the German occupation of Belgium, Norway, The Netherlands, and Luxemburg, the embassy at Brussels and the legations at Oslo, The Hague, and Luxemburg were closed. Consular offices are still maintained in these four countries, however.

The Consulate General in Warsaw, which remained open during the siege of that city in September 1939, was closed early in 1940.

After the Russian occupation of Estonia, Latvia, and Lithuania, the American diplomatic and consular offices in these three countries were closed.

A number of consular offices were closed by this Government in Zones of military activity when conditions became such that they could no longer perform any useful services for the Government of the United States or for its citizens. On the other hand it became necessary to open consular offices in other regions where the

United States was not adequately represented, particularly in Central and South America and in the Caribbean area.

During July and August 1940 a number of temporary consular offices were established at points along the Canadian and Mexican borders to facilitate the application of new and more stringent regulations governing the admission of aliens into the United States. By the end of 1940, however, the purpose for which these offices were established had been accomplished and most of them had been closed.

Promotions from the Ranks.—Of a total of 20 ambassadors and 30 ministers, 10 of the former and 16 of the latter have previously served in the ranks of the Foreign Service or of the Department of State. In addition, the Diplomatic Agent and Consul General at Tangier, Morocco, and the Minister Resident and Consul General at Baghdad, Iraq, are Foreign Service Officers.

Losses to the Service.—During 1940 there were three deaths in the Foreign Service and 25 resignations. At present the Service comprises 829 career officers.

CLASSIFICATION, FOREIGN SERVICE, 1940

	Salary	Number
Heads of Missions		
Ambassadors	$17,500	19
Ministers	12,000	1
Ministers	10,000	32
Diplomatic Agent and Consul General (Tangier)	FSO*	1
Minister Resident and Consul General (Baghdad)	FSO*	1
		54
Foreign Service Officers		
Class 1	$9,000–$10,000	46
Class 2	8,000– 8,900	40
Class 3	7,000– 7,900	57
Class 4	6,000– 6,900	84
Class 5	5,000– 5,900	87
Class 6	4,500– 4,900	100
Class 7	4,000– 4,400	126
Class 8	3,500– 3,900	112
Unclassified (a)	$3,400	2
Unclassified (a)	3,300	1
Unclassified (a)	3,200	2
Unclassified (a)	3,100	2
Unclassified (a)	3,000	54
Unclassified (b)	2,800	2
Unclassified (b)	2,750	67
Unclassified (c)	2,700	1
Unclassified (c)	2,600	2
Unclassified (c)	2,500	57
		842
Clerks—Senior		
Class 1	$4,000	5
Class 2	3,750	5
Class 3	3,500	12
Class 4	3,250	46
Class 5	3,000	47
Clerks—Junior		
Class 1	2,750	87
Class 2	2,600	0
Class 2	2,500	79
Class 3	all under 2,500	1584
		1865

* Foreign Service Officer.

II. INTERNATIONAL AFFAIRS AFFECTING THE UNITED STATES

DIPLOMATIC PERSONNEL

AMBASSADORS

	Accredited by United States		Accredited to United States	
Argentina	Norman Armour	1939	Señor Don Felipe A. Espil	1931
Belgium[1]	———		Count Robert van der Straten-Ponthoz	1935
Brazil	Jefferson Caffery	1937	Mr. Carlos Martins	1939
Chile	Claude G. Bowers	1939	Señor Don Alberto Cabero	1939
China	Nelson T. Johnson	1935	Dr. Hu Shih	1938
Colombia	Spruille Braden	1939	Señor Dr. Gabriel Turbay	1939
Cuba	George S. Messersmith	1940	Señor Dr. José T. Baron, Minister, Counselor and Chargé d'Affaires ad interim	1940
Ecuador	———		Señor Capitán Cólon Eloy Alfaro[4]	1936
France	William D. Leahy	1940	Mr. Gaston Henry-Haye	1940
Germany	———		Herr Hans Heinrich Dieckhoff	1937
Great Britain	John G. Winant	1941	Viscount Halifax	1940
Italy	William Phillips	1936	Don Ascanio dei principi Colonna	1939
Japan	Joseph C. Grew	1932	Mr. Morito Morishima, Counselor and Chargé d'Affaires ad interim	1940
Mexico	Josephus Daniels	1933	Señor Dr. Don Francisco Castillo Nájera	1935
Panama	William Dawson	1939	Señor Dr. Don Jorge E. Boyd	1940
Peru	R. Henry Norweb	1940	Señor Don Manuel de Freyre y Santander	1930
Poland[2]	Anthony J. Drexel Biddle, Jr.[3]	1937	Mr. Michal Kwapiszewski, Counselor and Chargé d'Affaires ad interim	1940
Spain	Alexander W. Weddell	1939	Señor Don Juan Francisco de Cárdenas	1939
Turkey	John Van A. MacMurray	1936	Mr. Mehmet Munir Ertegun	1934
Union of Soviet Socialist Republics	Laurence A. Steinhardt	1939	Mr. Constantine A. Oumansky	1939
Venezuela	Frank P. Corrigan	1939	Señor Dr. Don Díogenes Escalante	1939

[1] Government of Belgium established in England.
[2] Government of Poland established in England.
[3] Now in United States on consultation.
[4] Accredited as Ambassador Extraordinary and Plenipotentiary for the boundary negotiations between the Governments of Ecuador and Peru.

MINISTERS

	Accredited by United States		Accredited to United States	
Australia	Clarence E. Gauss	1940	The Right Honorable Richard G. Casey	1940
Bolivia	Douglas Jenkins	1939	Dr. Don Luis Fernando Guachalla	1936
Bulgaria	George H. Earle III	1940	Mr. Dimitri Naoumoff	1936
Canada	Jay Pierrepont Moffat	1940	Mr. Loring C. Christie	1939
Costa Rica	William H. Hornibrook	1937	Señor Don Luis Fernández	1940
Czecho-Slovakia	———		Mr. Vladimír Hurban	1936
Denmark	Ray Atherton[2]	1939	Mr. Henrik de Kauffmann	1939
Dominican Republic	Robert M. Scotten	1940	Señor Don Andrés Pastoriza	1935
Ecuador	Boaz Long	1938	Señor Capitán Colón Eloy Alfaro	1933
Egypt	Bert Fish	1933	Mahmoud Hassan Bey	1938
El Salvador	Robert Frazer	1937	Señor Dr. Don Hector David Castro	1934

	Accredited by United States		Accredited to United States	
Estonia[1]	John C. Wiley[2]	1938	Mr. Johannes Kaiv, Acting Consul General of Estonia in New York City in charge of Legation	1939
Finland	H. F. Arthur Schoenfeld	1937	Mr. Hjalmar J. Procopé	1939
Greece	Lincoln MacVeagh	1933	Mr. Cimon P. Diamantopoulos	1940
Guatemala	Fay A. Des Portes	1936	Señor Dr. Don Adrian Recinos	1928
Haiti	———		Mr. Elie Lescot	1937
Honduras	John D. Erwin	1937	Señor Dr. Don Julian R. Caceres	1939
Hungary	John Flournoy Montgomery	1933	Mr. Stephen de Rothkugel, Counselor and Chargé d'Affaires ad interim	1940
Iran	Louis G. Dreyfus, Jr.	1939	Mr. Mohammed Schayesteh	1940
Iraq	Paul Knabenshue (Minister Resident and Consul General)	1932	———	
Ireland	David Gray	1940	Mr. Robert Brennan	1938
Latvia[1]	John C. Wiley[2]	1938	Dr. Alfred Bilmanis	1935
Liberia	Lester A. Walton	1935	———	
Lithuania[1]	Owen J. C. Norem[2]	1937	Mr. Povilas Zadeikis	1935
Luxemburg	———		Mr. Hugues Le Gallais	1940
Monaco	Horace Remillard (Consul in Charge)	1939	———	
Morocco	John Campbell White (Diplomatic Agent and Consul General)	1940	———	
Netherlands[3]	George A. Gordon Grant[2]	1937	Dr. A. Loudon	1938
Nicaragua	Meredith Nicholson	1938	Señor Dr. Don León De Bayle	1937
Norway[4]	Mrs. Florence Jaffray Harriman[2]	1937	Mr. Wilhelm Munthe de Morgenstierne	1934
Palestine	George Wadsworth (Consul General in Charge.)	1935		
Paraguay	Findley B. Howard	1935	Señor Dr. Don Juan José Soler	1940
Portugal	Herbert Claibourne Pell	1937	Dr. João Antonio de Bianchi	1933
Rumania	Franklin Mott Gunther	1937	Mr. Brutus Coste, Secretary and Chargé d'Affaires ad interim	1940
San Marino	John R. Putnam (Consul General in Charge.)	1937	———	
Sweden	Frederick A. Sterling	1938	Mr. W. Bostrom	1926
Switzerland	Leland Harrison	1937	Mr. Charles Bruggmann	1939
Syria	Cornelius Van H. Engert, (Consul General in Charge.)	1940	———	
Thailand	Hugh Gladney Grant	1940	Mom Rajawongse Seni Pramoj	1940
Union of South Africa	Leo J. Keena	1937	Mr. Ralph William Close	1934
Uruguay	Edwin C. Wilson	1939	Mr. J. Richling	1934
Yugoslavia	Arthur Bliss Lane	1937	Mr. Constantin Fotitch	1935

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[1] Legation closed.
[2] Now in United States on consultation.
[3] Government of the Netherlands established in England.
[4] Government of Norway established in England.

THE LEAGUE OF NATIONS AND ASSOCIATED AGENCIES

By Arthur Sweetser

Member of the American Secretariat of the League of Nations

CHANGE IN AMERICAN RELATIONS

American relations with the League of Nations, the International Labor Organization, and the Permanent Court of International Justice took a new turn during the war year of 1940. The succession of Americans who in previous years had journeyed to Europe to participate in the many different types of cooperation set under way by the international institutions which grew out of the first World War came to an almost complete stop during the intensification of the second World War, and was replaced, indeed, by a small flow of League and Labor Office officials to the United States and Canada respectively.

DISRUPTION OF LEAGUE AGENCIES BY THE WAR

The normal work of the three principal post-war international agencies, which had continued somewhat during the first months of the war, became almost completely interrupted after the German offensive in the Spring. Geneva, seat of the first two, was largely cut off; The Hague, seat of the Court, and Paris, seat of the Institute of Intellectual Cooperation, were occupied. Travel became almost impossible; meetings could not be assembled. The staffs and budgets of the international institutions were drastically reduced. The most that could be done was to keep a small group at headquarters, send certain technical groups abroad to freer working conditions, and maintain as far as possible the records of scientific work against the inevitable day of its resumption. In these circumstances, a dozen of the League's economic and financial experts were established at Princeton, N. J., half a dozen opium officials in Washington, a half hundred Labor Office officials in Montreal, and the officers of the Court in Switzerland.

In addition, a number of statesmen high in League work came to the United States in 1940, notably Carl J. Hambro, President of the Norwegian Storthing, who also held the office of President of the League's Assembly and Supervisory Commission; Rudolph Holsti, former Foreign Minister and Permanent Delegate of Finland in Geneva; Paul Van Zeeland, former Premier of Belgium and active in League economic work; Senor Carlo Pardo, former Permanent Delegate of the Argentine in Geneva and now Counsellor of Embassy in Washington; Helio Lobo, Brazilian Government Delegate to the Labor Office in Geneva and later in Montreal.

In striking contrast with previous years, not a half dozen Americans crossed the Atlantic during 1940 to cooperate in League work. Herbert May was on hand to participate in the League's opium work in May; Judge Manley O. Hudson was in The Hague for the Court's session in February; while Carter Goodrich crossed for the meeting of the Governing Body of the Labor Organization in February and former Governor John G. Winant made two trips in connection with the transfer of the staff to Montreal.

CONTINUANCE OF AMERICAN INTEREST IN THE LEAGUE

The prevention of the usual American participation did not, however, betray a lack of American interest in the League. Indeed, as the League's danger increased, that interest seemed also to increase. During the year, a national committee of eminent Americans was created to aid and preserve the League's non-political work; President Roosevelt sent a warm letter of commendation of this effort; the Treasury Department made a most friendly reference to the League's opium work; and many American quarters cooperated in inviting or assisting League technical officers to come to the United States. It was not without significance that the nation which largely had called the League into being should be active in assisting it at its moment of greatest need.

AMERICAN COMMITTEE TO PRESERVE LEAGUE'S NON-POLITICAL ACTIVITIES

The first American step of this sort prompted by the war was the organization and announcement at the height of the German offensive in May of a National Committee "to aid and help preserve the technical and non-political activities of the League". Dr. Mary E. Woolley, President Emerita of Mount Holyoke

College, explained its purpose as follows:

"In this critical period, when brutal aggression threatens to bring back the Dark Ages, it is comforting to know that one institution in which the hopes of man were centered still struggles to keep alive the spirit and the meaning of international cooperation. . . . This work must go on even in time of war if the extremity of human suffering is to be averted; it will be indispensable when peace comes to a war-torn world. . . . Without these activities the future Peace Conference will be gravely handicapped. If they are destroyed, the task of rebuilding a peaceful world may fall short of success. Our Government and our people have wholeheartedly cooperated in these international activities for more than a decade. It is natural that Americans should view with concern their possible destruction."

Dr. Woolley made public a letter from President Roosevelt: "I have received the preliminary announcement that you are forming a committee to support the non-political and humanitarian activities of the League of Nations which have been crippled by the outbreak of the European war. Please allow me to say that I hope your committee will get full and adequate support.

"Without in any way becoming involved in the political affairs of Europe, it has been the continuous policy of this Government for many years to cooperate in the world-wide technical and humanitarian activities of the League. Certain of them, indeed are not only worthy but definitely essential.

"The League's Health Organization, for example, must in no way relax its efforts in preventing the spread of epidemics; wartime conditions definitely increase the danger. The world-wide efforts for better nutrition standards have already shown that the way towards solution of health problems may also be the way towards definite improvement of economic conditions.

"The international Narcotics Control system has been of the greatest value in combating the drug traffic. The Child Welfare work has won the sympathies of every friend of children. The League's committees on Intellectual Cooperation have outlined non-political programs furthering the mutual appreciation of artistic and cultural values essential to common civilization.

"Secretary Hull, in a letter to the Secretary-General of the League, dated Feb. 2, 1939, said: 'The League . . . has been responsible for the development of mutual exchange and discussion of ideas and methods to a greater extent and in more fields of humanitarian and scientific endeavor than any other organization in history. The United States Government is keenly aware of the value of this type of general interchange and desires to see it extended.'

"Realizing, as we must, that these essential and non-political activities are handicapped under war-time conditions, I am glad that your committee has undertaken the task of providing support, to the end that their work may continue. However Governments may divide, human problems are common the world over, and we shall never realize peace until these common interests take precedence as the major work of civilization."

ECONOMIC AND FINANCIAL DEPARTMENT AT PRINCETON

Shortly after, on June 11, three educational institutions at Princeton united in extending "a most cordial invitation to the technical sections of the secretariat to move from Geneva to this place . . . for such period as may prove to be necessary." The invitation, which was sent on behalf of the governing authorities of Princeton University, the Institute of Advanced Study, and the Rockefeller Institute for Medical Research by President Harold W. Dodds, Dr. Frank Aydelotte, and Carl TenBroeck respectively, said:

"During the past two decades we have watched with the greatest admiration the growth of the technical sections of the Secretariat of the League of Nations. They have provided leadership in the promotion of international collaboration between scholars, in the furthering of public health, in the control of opium, and in the international exploration of economic and financial problems. Recently we have become increasingly apprehensive that the war may do more than merely interrupt this work. With the involvement in hostilities of all countries surrounding Geneva, we are fearful that the trained personnel of these sections, so carefully built up, may be dispersed, and that the records so painstakingly accumulated may be destroyed."

This invitation was shortly accepted on behalf of the Economic and Financial Department and held under study as regards the Opium and Health sections. It was the more welcome not only because of the high standing and the scientific and research authority of the three inviting institutions, but also because the location was convenient to New York, with its communications and other facilities, and to Washington with its wealth of foreign information and data. That it happened to have been Woodrow Wilson's home, whence he set out to become President of the United States and founder of the League of Nations, was a coincidence, though a happy, even a dramatic one.

The League's appreciation was expressed by Mr. Hambro, President of the Assembly, at the League's Pavilion at the New York World's Fair, when he said that "it gave proof that all the competent, unostentatious, patient, good work accomplished during twenty years in practically every field of human activity, a work of sifting and consolidating, of collecting, classifying and presenting facts, of uniting the experts of every country in an exchange of experiences, of establishing a universal clearing house for progressive and constructive ideas, had not been entirely wasted, but was bread thrown upon the waters."

On Aug. 6, a group of 32 persons, comprising eight members of Section and their families, left Geneva by bus for Lisbon. After an almost fatal accident near Grenoble, the group arrived at Lisbon, A. Loveday, its director, going on by Clipper and the rest by boat. Despite nearly two months' interruption of work, the group had become thoroughly settled and resumed its publications by the end of the year. Its work, which had been greatly aided by the excellent facilities accorded it and by the most cordial unofficial and official cooperation, was explained by Mr. Loveday as follows:

"The work on which this group will be engaged will be mainly scientific and analytical. Ever since it started, the League has endeavored to keep governments and the public informed about general economic tendencies and developments throughout the world by means of regular publications on production, raw materials, trade, money and banking, public finance, etc. This work has been seriously impeded in recent months by the difficulty of communications between Geneva and a number of important countries. Some members of my department have, therefore, come on mission to Princeton to continue their studies of the situation from here. But the headquarters of the League and of my department remain at Geneva. We hope by having two centers of work to be able to keep in touch with developments throughout the world, and thus to obtain a balanced picture of the general economic situation as it develops, and a better understanding of the infinitely complex problems which lie before us."

THE HAGUE MEETING OF THE CENTRAL COMMITTEE

Of greatest specific American interest in such work as still proved possible during 1940 was the meeting at The Hague in February of the Central Committee endeavoring to elaborate a new organization for all the League's economic, financial, and social work in line with the interchange of correspondence between the League and Secretary of State Hull quoted in part in President Roosevelt's communication previously cited. While the problem was for the moment strictly a matter of internal League organization to assure greater autonomy and flexibility for this work, its course was greatly influenced by American views and by the general desire to facilitate American cooperation. Valuable progress was made during the meeting, and, while the actual execution was postponed by the intensification of the war which saw The Hague occupied by Germany only three months later, all this material will be available when the normal processes of international life are resumed.

ANTI-DRUG WORK

The only other meetings of direct American interest during 1940 were those in connection with the anti-drug work. The Opium Advisory Committee met at Geneva for its 25th session May 13-17, but for the first time in nearly 17 years, no representative of the United States Government came directly from Washington. The Government maintained its representation and cooperation, however, by sending to the meetings Curtis Everett of the Geneva Consulate, and joined cordially in the Committee's appeal to all states not to throw away during the war the enormous progress made in the 20 years of peace since the creation of the League.

The Government's attitude towards this work was shown in a publication issued by the United States Treasury Department in May, entitled "Protection Against Habit-forming Drugs". In a section on "Activities of the League of Nations" which it represented as continuing "in the face of changing European conditions" it was said: "The Opium Advisory Committee is the only official international body established to supplement the individual efforts of governments to suppress the illicit traffic in narcotic drugs and to check up the way in which governments fulfill their obligations under the Conventions. The Committee affords the one forum where the problem of the illicit traffic can be and is publicly discussed, and where any government whose territory has been used as a base for the illicit traffic may be publicly asked to account for its stewardship".

Apart from official cooperation, Herbert May participated in the May meetings of the Opium Central Board and the Supervisory Body whose tasks were described in the Treasury Department's report to be to "conduct correspondence with governments, whether inside or outside the League, gather statistics, and perform their official functions of regulating the lawful international traffic in narcotic drugs and imposing so-called embargoes when necessary". It was in view, in part, of his position as vice chairman of the first-named Board that several members of the secretariat of these Boards were invited to the United States towards the end of the year, where another member had preceded them under an invitation by the Government to the Opium Advisory Committee to make a general study and report on the whole American anti-drug effort. Thus much of the administration of this vitally important international activity was temporarily established in that country which had taken a leading part in calling the first anti-drug conference at Shanghai in 1909, in writing the first basic international anti-drug agreement at The Hague in 1912, in entrusting the administration of this work to the newly created League of Nations at the Paris Peace Conference, and in developing that work within the League to the nearest point yet reached to direct international administration.

AMERICAN ADMINISTRATIVE COOPERATION

The United States also continued such other administrative cooperation as possible in the circumstances. It transmitted all its treaties for registration by the League and publication in its Treaty Series in accordance with the agreement of several years before. It also furnished other information of an administrative or statistical nature, particularly in the economic and financial fields for inclusion in the League's statistical publications, and in the Armaments field for inclusion in the *Armaments Year-Book* which appeared, as usual, despite the war. The Philippine Islands continued as a sustaining member of the League's Far Eastern Bureau of Epidemiological Intelligence at Singapore.

REDUCTION OF AMERICAN PERSONNEL AT GENEVA

American personnel at Geneva fell off considerably during 1940. The Secretariat saw a further reduction of American members with the departure of Miss Alice Bartlett, who had been in the Library from the start, Benjamin Gerig, a member of the Information Section for ten years, and Noel Field, member of the Disarmament Section, leaving two Americans on the greatly reduced staff, Arthur Sweetser, a Director, who had been with the League since the Peace Conference, and Royal Tyler of the Economic Section. The group of American journalists, broadcasters, and others connected with the international life of Geneva was also reduced by transfer or return.

LEAGUE EXHIBIT AT NEW YORK WORLD'S FAIR, 1940

One interesting fact during 1940 was that, while events were going so adversely for the League in Europe, its pavilion at the New York World's Fair drew during its second year proportionately larger numbers than in the previous less tragic year. A volunteer American Committee, impressed with the great educational value of the exhibit, had taken over the financial responsibility for the second year's operation under an agreement with the League that the latter would provide the building, a part of the previous year's surplus, and the Commissioner General, Benjamin Gerig, member of the League's Information Section, was appointed to this post, and the exhibit consequently kept open a second year on a cooperative basis. In its two years it drew about 2,250,000 visitors, and its exhibits were so much appreciated by educational authorities that various educational agencies requested and were given special sections; for instance, the Historical Room to Haverford College, the Economic Room to Swathmore College, and the Permanent Court Room to the Harvard Law School.

INTERNATIONAL LABOR ORGANIZATION

American relations with the International Labor Organization during 1940 were far more direct and effective than with the League, for the double reason, first, that the United States was a full, formal, and official member of the Organization, and, second, that two American citizens happened at the moment to occupy its two highest posts, former Governor John G. Winant of New Hampshire being director of the Office, and Carter Goodrich, American Government Representative in Geneva, being chairman of its Governing Body. The position of leadership which America's active and liberal policies had built up in the Organization before the war became enhanced with the absorption in the war of many other member states and with the transfer in August of the headquarters of the Office to the American Continent.

The year 1940 opened for the Organization with some degree of normalcy when the Governing Body held its regular scheduled meeting in Geneva in February and continued with its study of labor and industrial problems during and after the war. The United States was fully represented, as usual, by a tripartite delegation of Government, Employers, and Workers delegates, respectively Mr. Goodrich, Clarence G. McDavitt, and Robert J. Watt. The members took an active and constructive part, the importance of which was accentuated by Mr. Goodrich's position as chairman and Mr. Winant's position as director, and by the fact of being free of the war preoccupation of many other delegates.

The development of the German

offensive in the spring, however, altered the situation fundamentally. The annual Conference scheduled for June was adjourned on the day following the invasion of the Low Countries, and that of the Permanent Committee on Migration for Settlement several days later. More important still, however, was the transfer of the headquarters of the Office from Geneva to Montreal. No change had been made so long as the only danger was that of physical invasion, but with the fall of France and the consequent complication of communications with non-European states, the situation changed completely. On Aug. 19, the Director, Mr. Winant, the Canadian Government, and McGill University announced the acceptance of an invitation to establish headquarters at the University in Montreal and by late summer some half hundred of the staff had made the long and difficult trip from Geneva *via* Lisbon and resumed their work on Canadian soil.

The establishment of the Office in the American Continent was expected to have a great effect upon its work, particularly following the successful regional American Conference at Havana in December 1939, which adopted the Declaration of Havana paralleling in the field of Social and Labor Relations the Declarations of Lima and Panama in the political and juridical fields. An indication of this was given at the International Association of Government Labor Officials of the United States and Canada which, at its convention in New York in September, adopted a resolution presented by its retiring president, Adam Bell of British Columbia, and its incoming president, Miss Frieda Miller of New York, challenging the Organization to adopt a program "for the maintenance of World Peace based upon the recognition of the underlying necessity for adequate provision for Workers' welfare everywhere".*

SOCIAL WORK OF LABOR OFFICE IN LATIN AMERICA

This challenge was in fact fully met during the year. First, a series of technical missions were undertaken in Latin America by the Chief of the Social Insurance Section to assist in the establishment and improvement of the social insurance systems in many of the 16 Latin-American states, members of the Organization. Secondly, and more important, in December the Office joined with the Peruvian Government in holding an Inter-American Conference on Social Security in Lima on the occasion of the dedication of the largest workers' hospital in South America, and with an official visit to Peru by the Director of the Office, Mr. Winant.

The principal result was the creation of an "Inter-American Committee to Forward Social Security" as a permanent organ of cooperation amongst Latin-American countries in the field of Social Security and in collaboration with the International Labor Organization. The agreement received the unanimous support of the representatives of the national social security institutions of Bolivia, Chile, Equador and the United States, and of the diplomatic representatives of Argentina, Brazil, Colombia, Mexico and Venezuela. The Conference adopted the social security standards of the Office as the bases for the future action of the Committee, asked the Office to secure the collaboration of the social security institutions not represented at Lima, and requested it to prepare a handbook of social security standards and an analysis of the various approaches to the question.

UNITED STATES COOPERATION

The United States Government also continued active cooperation in the day-to-day work of the Organization. The Department of Labor maintained its liason office in Geneva, while the Organization also maintained the Office it has long had in

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* For an account of the transfer to Montreal see an article "The I. L. O. at Montreal" by Carter Goodrich in the September 1940 issue of *Changing World* issued by the League of Nations Association, 8 W. 40th Street, New York.

Washington. In June, President Roosevelt, in conformity with the Organization's procedure, transmitted to Congress the draft Conventions adopted by the International Labor Conference in 1939, while two bills were introduced in Congress to implement the Conventions on Minimum Age at Sea and Shipowners' Liability for Sick and Injured Seamen, which had been among the five maritime conventions ratified by Congress in 1938.

PERMANENT COURT OF INTERNATIONAL JUSTICE

Most tenuous of American connections with the post-war agencies of international cooperation was that which the United States Government had most strongly attempted to complete, namely, that with the Permanent Court of International Justice. The only contact, indeed, was a personal one, Judge Manley O. Hudson continuing to hold the seat on the Court held successively since 1920 by John Bassett Moore, Charles Evans Hughes, and Frank B. Kellogg. Judge Hudson participated in the Court's session in February, later going to Geneva to await the spring session, but returning to Cambridge, Mass. when that session was postponed by Germany's occupation of the seat of the Court. Otherwise, as the continued existence of the Court became jeopardized by financial difficulties, the United States Government seemed destined to play no part in the decision as to whether or not this international institution of law, which it had most strongly urged since the 1907 Hague Conference, should continue in being or be lost in a temporary emergency.

CHRONOLOGY OF FOREIGN EVENTS, 1940

(From *The New York Times*)

JANUARY

8—Britain begins food-rationing.

20—Winston Churchill, First Lord of the Admiralty, tells Europe's neutrals they cannot keep out of the war and asks them to join the Allies.

FEBRUARY

1—Russians assault Finns on Mannerheim Line.

9—President Roosevelt sends Sumner Welles, Under-Secretary of State, to confer with rulers of Britain, France, Germany and Italy.

11—Lord Tweedsmuir, Governor General of Canada, dies.

16—Sweden rejects Finnish plea for aid with troops.

17—British rescue 326 captives aboard German prison ship Altmark in Norwegian waters.

20—Russians claim capture of Koivisto, Finland.

24—Prime Minister Chamberlain declares Britain never will conclude peace with Reich's present rulers.

MARCH

1—Russians enter Vipuri, key Finnish City.

11—Allies offer full aid to Finland.

12—Soviet-Finnish peace treaty signed, Russia getting Karelian Isthmus and naval base at Hangoe.

18—Hitler and Mussolini confer at Brennero.

20—Russia warns Sweden, Norway and Finland against entering into defensive alliance. Edouard Daladier resigns French Premiership.

21—Paul Reynaud forms new French Cabinet.

APRIL

3—Churchill gets general supervision over Britain's fighting strength. Earl of Athlone named Governor General of Canada.

8—Allies announce laying mines off Norway to close loophole in blockade of Germany.
9—Germans occupy Denmark and invade Norway.
16—British expedition arrives on Norwegian coast.
30—Germans capture Dombaas, key rail town in Norway.

MAY

2—British quit Southern Norway, but fight on at Narvik.
7—Against violent Parliamentary attacks, Chamberlain defends his government's policy in Norway.
10—Germany invades the Netherlands, Belgium, Luxembourg.
11—Allies rush aid to Low Countries; Churchill succeeds Chamberlain as British Prime Minister.
13—Germans take Sedan; reach Rotterdam, cutting Netherlands in two. Fleeing Queen Wilhelmina arrives in London.
14—Dutch armies cease resistance.
17—Germans penetrate thirty-five miles into France, while pushing back the British in Belgium.
19—Maxime Weygand replaces Maurice Gamelin as French commander; Germans eighty miles from Paris.
21—Germans reach French Channel coast at Abbeville, cutting off British-Belgian forces.
22—Britain's Parliament passes bill giving government power to conscript every person, penny and piece of property.
25—Weygand dismisses fifteen French generals, as Germans take Ghent, Vimy, press on Calais, Boulogne.
28—Belgians surrender on King Leopold's orders. British struggle to escape from Flanders by sea.
31—Most of the battered B. E. F. reach English shores from Dunkirk.

JUNE

3—Germans bomb Paris.
5—German offensive begins on Somme front.
9—Germans thirty-five miles from Paris. Allies evacuate Narvik in Norway.
10—Italy declares war on the Allies. Germans cross the Seine and France's government flees Paris. Soviet announces agreement with Japan on Manchukuo-Outer Mongolian frontier.
12—Germans cross Marne.
13—French declare Paris an open city; German troops march in.
15—Germans take Verdun. Soviet troops march into Lithuania.
16—Henri Philippe Pétain takes Reynaud's place as French Premier.
17—France asks for armistice and "honorable peace." Britain declares she will fight on alone. Russian forces move into Latvia and Estonia.
22—France signs German armistice in Compiègne Forest.
24—France signs armistice with Italy.
25—France gives "cease fire" order.
28—Rumania cedes Bessarabia and Northern Bukovina to Russia.

JULY

1—Germans occupy two British islands in Channel. Rumania renounces Anglo-French guarantee of independence.
3—British Navy seizes French warships; battles a French fleet off Oran, Algeria.
5—French Government at Vichy breaks off diplomatic relations with Britain.
7—Forty-seven slain as Mexico elects Manuel Avila Camacho President.
10—French Parliament votes itself out of existence in favor of totalitarian regime.
12—Pétain, "dictator" of unoccupied France, chooses Pierre Laval as Vice Premier and ultimate successor.
14—Colonel Fulgencio Batista elected President of Cuba.
17—Britain agrees to close for three months the Burma Road, arms route to China.
21—Latvia, Lithuania and Estonia,

under Russian domination, ask for incorporation into Soviet Union.

27—At Havana a Pan-American conference adopts plan for joint trusteeship of European colonies in Western Hemisphere threatened with transfer to Germany.

29—Germany launches mass air raids on Britain.

AUGUST

6—Italians invade British Somaliland.

8—Hundreds of German bombers raid Channel convoy and British towns.

14—British bombers raid Italian airplane factories.

15—1,000 Nazi planes over Britain.

17—Germany announces total blockade of waters around Britain.

19—Italy conquers British Somaliland.

20—Churchill announces plan to lease bases to United States on British territory in Western Hemisphere.

21—Rumania agrees to cede Southern Dobruja to Bulgaria. Leon Trotsky dies in Mexico of an assassin's blows.

25—German bombers attack London.

26—British bombers attack Berlin.

30—Axis forces Rumania to cede part of Transylvania to Hungary.

SEPTEMBER

4—Hitler at Sportpalast threatens to raze British cities in reprisal for R. A. F. bombing.

5—General Ion Antonescu, friendly to fascist Iron Guard, named Rumanian Premier.

6—Following rioting by Iron Guardists, Rumania's King Carol abdicates in favor of son, Michael. Vichy announces General Weygand is being sent to Africa to protect French Empire interests.

7—All-out bombing of London begins.

10—R. A. F. raids Berlin.

11—Churchill warns empire that Hitler is massing troops and barges for invasion attempt; British planes and warships attack German "invasion ports" on Continent.

14—Striking from Libya, Italy invades Egypt in drive toward Suez.

22—Japanese and French reach agreement giving Japan air bases and right to maintain troops in Indo-China.

27—Germany, Italy and Japan sign Pact of Berlin.

OCTOBER

4—Hitler and Mussolini confer at Brenner Pass.

8—Nazi troops begin to enter Rumania, ostensibly to protect oil fields.

10—Germans declare "total war" on as Luftwaffe attacks more than fifty London districts. Bucharest filled with Nazi troops.

18—Britain reopens the Burma Road.

22—Hitler, in France, confers with Vice Premier Pierre Laval.

23—Hitler talks with Franco on Franco-Spanish border.

24—Hitler meets Pétain "somewhere in France."

28—Italy invades Greece. R. A. F. bombs Skoda works at Pilsen. Hitler and Mussolini meet at Florence.

NOVEMBER

2—Greeks counter-attack, drive Italians into Albania.

5—Churchill deems U-boat raids a greater menace than air raids.

9—"Free French" forces attack Libreville, capital of French Gabon. Neville Chamberlain dies.

10—Rumania suffers worst earthquake in her history.

12—Soviet Premier and Foreign Commissar Molotoff confers with Hitler in Berlin. British destroy thirteen Italian planes, first shot down over England.

13—British fleet's torpedo-carrying planes attack Italian warships at Taranto.

14—British industrial city of Coventry devastated by all-out Luftwaffe attack.

23—Rumania signs Berlin-Tokyo-Rome pact.

27—Rumania's Iron Guard executes sixty-four former officials of exiled King Carol's government; rioting throughout country.

DECEMBER

3—Italy's central defense line in Albania crumbles.

6—Greeks capture Porto Edda; Marshal Pietro Badoglio resigns as Italian Chief of Staff.

8—Greeks take Argyrokastron; changes continue in Italian High Command.

9—"British and Imperial Army of the Nile" opens offensive against Italians in Egypt; 1,000 prisoners taken.

11—British take Sidi Barrani and thousands of prisoners.

12—Marquess of Lothian, British Ambassador in Washington, dies.

14—Pétain ousts Vice Premier Laval from French Cabinet.

15—British forces drive Italians out of Egypt; invade Libya.

21—Germany terms American aid to Britain "moral aggression."

23—London announces appointment of Viscount Halifax as Ambassador to the United States; Anthony Eden becomes Foreign Secretary. Prime Minister Churchill broadcasts an appeal to the Italian people to revolt.

27—Germans and British renew bombings after Christmas truce.

PERIODICAL PUBLICATIONS

American Journal of International Law
700 Jackson Place N.W., Washington, D.C.

Current History and Forum
366 Madison Ave., New York City.

Events
1133 Broadway, New York City.

Foreign Affairs
45 East 65th Street, New York City.

Foreign Policy Bulletin
22 East 38th Street, New York City.

Foreign Policy Reports
22 East 38th Street, New York City.

Living Age
420 Madison Ave., New York City.

Pacific Affairs
129 East 52nd Street, New York City.

Pan American Union Bulletin
Pan American Union, Washington, D.C.

Time Weekly Newsmagazine (The)
9 Rockefeller Plaza, New York City.

World Affairs
734 Jackson Place, Washington, D.C.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

Academy of Political Science, Fayerweather Hall, Columbia University, New York City.

American Academy of Political and Social Science, 3457 Walnut St., Philadelphia, Pa.

American Arbitration Association, 8 West 40th St., New York City.

American Peace Society, 734 Jackson Place, Washington, D.C.

American Political Science Association, 305 Harris Hall, Northwestern University, Evanston, Ill.

II. INTERNATIONAL AFFAIRS AFFECTING THE UNITED STATES

American Society of International Law, 700 Jackson Place, N.W., Washington, D.C.

Carnegie Endowment for International Peace, 700 Jackson Place, N.W., Washington, D.C.

Council on Foreign Relations, Inc., 45 East 65th Street, New York City.

Foreign Policy Assn., 22 East 38th Street, New York City.

International Reform Federation, 134 B St., N.E., Washington, D.C.

League of Nations Assn., 8 West 40th St., New York City.

National Council for Prevention of War, 532 17th St., N.W., Washington, D.C.

People's Lobby, Inc., 404 Burchell Bldg., Washington, D.C.

Women's International League for Peace and Freedom, 20 Vesey Street, New York City.

Women's Peace Union, 2 Stone St., New York City.

World Peace Foundation, 40 Mount Vernon St., Boston, Mass.

REGIONAL

American Asiatic Assn., 1 Hanover Square, New York City.

China Society of America, 570 Lexington Ave., New York City.

Committee on Cooperation in Latin America, 156 Fifth Ave., New York City.

English-Speaking Union of the United States, 30 Rockefeller Plaza, New York City.

Far East Conference, 11 Broadway, New York City.

French Institute in the United States, 22 East 60th St., New York City.

Japan Society, Inc., 527 Fifth Ave., New York City.

Netherland-America Foundation Inc., 10 Rockefeller Plaza, New York City.

Pan-American Society, Inc., 67 Broad St., New York City.

Pan-Pacific Union, Inc., 1025 Alakea St., Honolulu, Hawaii.

PART TWO

AMERICAN GOVERNMENT

DIVISION III

THE NATIONAL GOVERNMENT

FEDERAL ADMINISTRATIVE ORGANIZATION

By William M. Schuyler

Editor, *The American Year Book*

THE PRESIDENT AND VICE-PRESIDENT

President.—Franklin Delano Roosevelt, of New York (Democrat). Sworn into office as President of the United States, March 4, 1933, in succession to Herbert Hoover, and inaugurated for third term Jan. 20, 1941.

Vice President.—Henry Agard Wallace of Iowa (Democrat), inaugurated Vice President of the United States Jan. 20, 1941.

Executive Office of the President.—

White House Office—Marvin Hunter McIntyre (Kentucky), Stephen Early (Virginia), Brigadier General Edwin Martin Watson (Alabama), Secretaries; Marguerite A. Le Hand, Personal Secretary to the President.

Bureau of the Budget—Harold D. Smith, Director.

Statistical Standards—Stuart A. Rice, Chairman.

National Resources Planning Board—Frederic A. Delano, Chairman.

Office of Government Reports—Lowell Mellett, Director.

Division of Press Intelligence—Charlotte J. Hatton, Director.

U. S. Information Service—Harriet M. Root, Chief.

Liaison Office for Personnel Management—William H. McReynolds, Liaison Officer.

Presidential Vacancy.—By Act of Congress, in the case of vacancy occurring in the office of President through the death or removal of both the President and Vice President, the Cabinet Officers succeed to the Presidency in the order indicated in the arrangement of the following summary of the executive departments:

DEPARTMENT OF STATE

Secretary of State.—Cordell Hull.

Under Secretary of State.—Sumner Welles.

Assistant Secretaries of State.—Adolf A. Berle, Jr., Henry F. Grady, Breckinridge Long.

Foreign Service Personnel Board.—Breckinridge Long, chairman.

Legal Adviser.—Green H. Hackworth.

Counselor.—R. Walton Moore.

Economic Adviser.—Herbert Feis.

Advisers on Political Relations.—James C. Dunn, Stanley K. Hornbeck, Laurence Duggan.

Director of Personnel.—Edward Yardley.

Assistant to the Secretary of State.—Cecil W. Gray.

Chiefs of Divisions.—

Far Eastern Affairs.—Maxwell M. Hamilton.

American Republics.—Philip W. Bonsal (Acting).

European Affairs.—Ray Atherton (Acting).
Near Eastern Affairs.—Wallace Murray.
Passport.—Ruth B. Shipley.
Current Information.—Michael J. McDermott.
Foreign Service Administration.—Nathaniel P. Davis.
Foreign Service Personnel.—G. Howland Shaw.
Protocol.—George T. Summerlin.
International Communications.—Thomas Burke.
International Conferences.—Warren H. Kelchner.
Treaty.—Charles M. Barnes.
Research and Publication.—E. Wilder Spaulding.
Commercial Treaties and Agreements.—Harry C. Hawkins.
Visa.—Avra M. Warren.
Communications and Records.—David A. Salmon.
Cultural Relations.—Charles A. Thomson.
Accounts.—Donald W. Corrick.
Controls.—Joseph C. Green.
Special.—George L. Brandt.

Chiefs of Offices.—
Arms and Munitions Control.—Joseph C. Green.
Central Translating.—Guillermo A. Suro (Acting).
Consular Commercial.—James J. Murphy, Jr.
Editor of Treaties.—Hunter Miller.
Co-ordination and Review.—Blanche Rule Halla.
Fiscal and Budget Affairs.—Ella A. Logsdon.
Foreign Service Buildings.—Frederick Larkin.
Foreign Service Officers' Training School.—J. Klahr Huddle.
Philippine Affairs.—John K. Davis.

Committee for Reciprocity Information.—Oscar B. Ryder, Chairman.

National Munitions Control Board.—Secretary of State, Chairman.

DEPARTMENT OF THE TREASURY

Secretary of the Treasury.—Henry Morgenthau, Jr.

Charged with the management of the national finances; prepares plans for the improvement of the revenue and support of the public credit; superintends collection of the moneys paid from and into the Treasury; controls construction of public buildings, coinage and printing of money, and the administration of the Coast Guard and the Public Health Service; *ex-officio* chairman of the Federal Reserve Board.

Under Secretary of the Treasury.—Daniel W. Bell.

Assistant Secretary.—John L. Sullivan.

Assistant Secretary in Charge of Coast Guard, Narcotics, and Secret Service.—Herbert E. Gaston.

Director of Personnel.—E. R. Ballinger.

Special Assistants to the Secretary.—Harold N. Graves, Philip Young, John W. Pehle.

Administrative Assistant to the Secretary.—W. N. Thompson.

Chief Clerk.—F. A. Birgfeld.

Commissioner of the Public Debt Service.—William S. Broughton.

Commissioner of Accounts and Deposits.—E. F. Bartelt.

General Counsel.—Edward H. Foley, Jr.

Chiefs of Divisions.—
Appointments.—James E. Harper.
Savings Bonds.—Eugene W. Sloan.
Printing.—L. C. Spangler.
Correspondence.—Gabrielle E. Forbush.
Monetary Research.—Harry D. White.
Tax Research.—Roy Blough.
Research and Statistics.—George C. Haas.
Secret Service.—Frank J. Wilson.
Procurement.—H. E. Collins.
Chief Disbursing Officer.—Guy F. Allen.

Comptroller of the Currency.—Preston Delano.

Has supervision of the national banks, their examination and reports; preparation and issue of national bank circulation; redemption and destruction of national bank notes. *Ex-officio* member of the Federal Reserve Board.

Treasurer of the United States.—William A. Julian.

Charged with the receipts and disbursement of all public moneys deposited in the Treasury and Sub-Treasuries and in national banks depositories.

Commissioner of the Bureau of Customs.—W. R. Johnson.

Commissioner of the Bureau of Internal Revenue.—Guy T. Helvering.

Charged with general supervision of the collection of all internal revenue taxes, including the income tax, and the enforcement of internal revenue laws.

Director of the Bureau of the Mint.—Nellie Tayloe Ross.

Has general supervision of the mints and assay offices.

Commissioner of Narcotics.—H. J. Anslinger.

Director of the Bureau of Engraving and Printing.—Alvin W. Hall.

Produces all the securities and similar work of the Government printed from steel plates.

Coast Guard.—Rear Admiral Russell R. Waesche, Commandant.

Custom House.—Franklin A. M. Shafer, Deputy Collector in Charge.

Committee on Enrollment and Disbarment.—G. C. Hanna, Chairman.

Processing Tax Board of Review.—William Schwartz, Chairman.

DEPARTMENT OF WAR

Secretary of War.—Henry L. Stimson.

Under Secretary of War.—Robert P. Patterson.

Administrative Assistant and Chief Clerk.—John W. Martyn.

Special Assistant to the Secretary of War.—Arthur E. Palmer.

Clerk to the Secretary of War.—John W. Schott.

War Department General Staff.—General George C. Marshall, Chief of Staff; Major General William Bryden, Deputy Chief of Staff.

Office of the Chief of Cavalry.—Major General John K. Herr, Chief.

Chief of Field Artillery.—Major General Robert M. Danford.

Chief of Coast Artillery.—Major General Joseph A. Green.

Chief of Infantry.—Major General George A. Lynch.

Chief of Chaplains.—William R. Arnold.

The Adjutant General.—Major General Emory S. Adams.

The Inspector General.—Major General Virgil L. Peterson.

The Judge Advocate General.—Major General Allen W. Gullion.

The Quartermaster General.—Major General Edmund B. Gregory.

Chief of Finance.—Major General H. K. Loughry.

Surgeon General.—Major General James C. Magee.

Chief of Engineers.—Major General Julian L. Schley.

Chief of Ordnance.—Major General C. M. Wesson.

Chief Signal Officer.—Major General J. O. Mauborgne.

Chief of the Air Corps.—Major General H. H. Arnold.

Director of Aircraft Production.—Brigadier General Henry W. Harms.

Chief of the National Guard Bureau.—Major General John F. Williams.

Chief of the Chemical Warfare Service.—Major General Walter C. Baker.

The Army War College.—Colonel Ned B. Rehkopf, Acting Commandant.

The Army Industrial College.—Col. F. H. Miles, Jr., Director.

DEPARTMENT OF JUSTICE

Attorney General.—Robert H. Jackson.

Represents the United States in all legal matters.

Solicitor General.—Francis Biddle.

Assistant to the Attorney General.—Matthew F. McGuire.

Assistant Attorneys General.—Thurman W. Arnold, Samuel O. Clark, Francis M. Shea, O. John Rogge, Norman M. Littell.

Assistant Attorney General, Division of Customs.—Charles D. Lawrence (Acting).

Immigration and Naturalization

Service.—Lemuel B. Schofield, in charge.

Director of the Bureau of Investigation.—J. Edgar Hoover.

Director of the Bureau of Prisons.—James V. Bennett.

Federal Prison Industries, Inc.—Sanford Bates, President.

Executive Assistant to the Attorney General.—Ugo Carusi.

Administrative Assistant.—Thomas D. Quinn.

General Agent.—E. R. Butts.

Chief Clerk.—Harvey C. Donaldson.

Appointment Clerk.—Nellie G. Plumley.

Chief of the Division of Records.—Armando di Girolamo.

Chief of the Division of Supplies and Printing.—John W. Adler.

Director of Information.—Robert M. Gates.

Librarian.—Matthew A. McKavitt.

Pardon Attorney.—Daniel M. Lyons.

Board of Parole.—Arthur D. Wood, T. Webber Wilson, Edward P. Reidy.

POST OFFICE DEPARTMENT

Postmaster General.—Frank C. Walker.

Executive Assistant to the Postmaster General.—J. Austin Latimer.

Special Assistant to the Postmaster General.—William J. Bray.

Administrative Assistant to the Postmaster General.—William C. Lyons.

First Assistant Postmaster General.—Ambrose O'Connell.

Second Assistant Postmaster General.—Smith W. Purdum.

Third Assistant Postmaster General.—Ramsey S. Black.

Fourth Assistant Postmaster General.—Walter Myers.

Comptroller and Budget Officer.—William L. Slattery.

Director of Parcel Post.—John A. Brennan.

Solicitor.—Vincent M. Miles.

Chief Post Office Inspector.—Kildroy P. Aldrich.

Superintendent of Air Mail Service.—Roy M. Martin.

DEPARTMENT OF THE NAVY

Secretary of the Navy.—Frank Knox.

Under Secretary of the Navy.—James V. Forrestal.

Assistant Secretary of the Navy.—Lewis Compton.

Administrative Assistant and Chief Clerk.—William D. Bergman.

Chief of Division of Records.—Charles M. Baruch.

Budget Officer.—Capt. Ezra G. Allen.

Director of Shore Establishments.—Capt. C. W. Fisher.

Island Governments.—Capt. Roscoe E. Schuirmann.

Guam.—Capt. George J. McMillin, Governor.

American Samoa.—Captain Lawrence Wild, Governor.

Chief of Naval Operations.—Admiral Harold R. Stark.

Chief of the Bureau of Navigation.—Rear Admiral Chester W. Nimitz.

Chief of the Bureau of Yards and Docks.—Rear Admiral Ben Moreell.

Chief of the Bureau of Ordnance.—Rear Admiral W. F. Furlong.

Chief of the Bureau of Ships.—Rear Admiral Samuel M. Robinson.

Chief of the Bureau of Supplies and Accounts.—Rear Admiral Ray Spear.

Chief of the Bureau of Medicine and Surgery.—Rear Admiral Ross T. McIntire, Surgeon General.

Chief of the Bureau of Aeronautics.—Rear Admiral John H. Towers.

Judge Advocate General.—Rear Admiral W. B. Woodson.

Naval Consulting Board.—Thomas Robins, Secretary.

Compensation Board.—Rear Admiral Ivan E. Bass, Senior Member.

General Board.—Rear Admiral W. R. Sexton, Chairman.

President of the Board of Medical Examiners.—Rear Admiral Benjamin H. Dorsey.

President of the Naval Examining and Retiring Boards.—Rear Admiral Charles E. Courtney.

Naval Dispensary.—Captain Richard A. Warner, Medical Corps.

Navy Yard and Station, Wash-

ington, D.C.—Rear Admiral George Pettengill, Commandant.

Naval Air Station.—Commander Osborne B. Hardison.

Naval Medical Center.—Rear Admiral Harold W. Smith, commanding officer.

Naval Medical School.—Captain Dallas G. Sutton.

Naval Hospital.—Captain Robert E. Hoyt.

President of the Board for Examination of Medical Officers.—Captain Dallas G. Sutton.

President of the Board of Examination of Dental Officers.—Captain Dallas G. Sutton.

Headquarters Marine Corps.—Major General Thomas Holcomb, Commandant.

Naval Examining Board (Marine Corps).—Brigadier General Samuel M. Harrington, President.

Marine Barracks.—Col. John Potts, commanding.

DEPARTMENT OF THE INTERIOR

Secretary of the Interior.—Harold L. Ickes.

Charged with pensions, public lands, Indian Affairs, geological surveys, reclamation of arid lands, and mines.

Under Secretary.—Alvin J. Wirtz.

First Assistant Secretary.—Ebert K. Burlew.

Assistant Secretary.—Oscar L. Chapman.

Chief Clerk.—Floyd E. Dotson.

Solicitor.—Nathan R. Margold.

Director of Classification.—John Harvey.

Commissioner of the General Land Office.—Fred W. Johnson.

Fish and Wildlife Service.—Ira N. Gabrielson, Director.

Commissioner of the Office of Indian Affairs.—John Collier.

Director of the Geological Survey.—W. C. Mendenhall.

Commissioner of the Bureau of Reclamation.—John C. Page.

Director of the National Park Service.—Newton B. Drury.

Director of the Bureau of Mines.—R. R. Sayers.

Division of Territories and Island Possessions.—Rupert Emerson.

Territorial Officials.—

Alaska.—Ernest Gruening, Governor.

Hawaii.—Joseph B. Poindexter, Governor.

Virgin Islands.—Lawrence W. Cramer, Governor.

Puerto Rico.—(Vacant), Governor.

The Alaska Railroad.—Otto F. Ohlson, General Manager.

Oil Administration.—Harold L. Ickes, Secretary of the Interior, Administrator.

DEPARTMENT OF AGRICULTURE

Secretary of Agriculture.—Claude R. Wickard.

Under Secretary.—Paul H. Appleby.

Assistant Secretary.—Grover B. Hill.

Assistants to the Secretary.—James L. McCamy, Carl Hamilton.

Agricultural Adjustment Administration.—R. M. Evans, Administrator.

Agricultural Marketing Service.—C. W. Kitchen, Chief.

Director of Extension Service.—Milburn L. Wilson.

Director of Research.—James T. Jardine.

Director of Personnel.—Roy F. Hendrickson.

Director of Information and Land Use Coordinator.—Milton S. Eisenhower.

Director of Finance and Budget Officer.—W. A. Jump.

Solicitor.—Mastin G. White.

Librarian.—Ralph R. Shaw.

Office of Experiment Stations.—James T. Jardine, Chief.

Office of Foreign Agricultural Relations.—Leslie A. Wheeler, Director.

Bureau of Animal Industry.—John R. Mohler, Chief.

Bureau of Dairy Industry.—O. E. Reed, Chief.

Bureau of Plant Industry.—E. C. Auchter, Chief.

Forest Service.—Earle H. Clapp, Acting Chief.

Bureau of Agricultural Chemistry and Engineering.—Henry G. Knight, Chief.

Bureau of Entomology and Plant Quarantine.—Lee A. Strong, Chief.

Bureau of Agricultural Economics.—Howard R. Tolley, Chief.

Bureau of Home Economics.—Louise Stanley, Chief.

Commodity Credit Corporation.—Carl B. Robbins, President.

Commodity Exchange Administration.—J. M. Mehl, Chief.

Soil Conservation Service.—H. H. Bennett, Chief.

Farm Security Administration.—C. B. Baldwin, Administrator.

Farm Credit Administration.—A. G. Black, Governor.

Federal Farm Mortgage Corporation.—A. G. Black, Chairman.

Economic Adviser.—Mordecai Ezekiel.

Surplus Marketing Administration.—Milo Perkins, Administrator.

Federal Crop Insurance Corporation.—Rudolph M. Evans, Chairman.

Rural Electrification Administration.—Harry Slattery, Administrator.

DEPARTMENT OF COMMERCE

Secretary of Commerce.—Jesse H. Jones.

Under Secretary.—Wayne C. Taylor.

Assistant Secretary.—Robert H. Hinckley.

Administrative Assistant to the Secretary.—Malcolm Kerlin.

Solicitor.—South Trimble, Jr.

Chief Clerk and Superintendent.—E. W. Libbey.

Chief of Division of Accounts.—Charles E. Molster.

Chief of Division of Publications.—Clifford F. Mayne.

Chief of Division of Purchases and Sales.—Walter S. Erwin.

Librarian.—Charlotte L. Carmody.

Director of the Bureau of Census.—William L. Austin.

Civil Aeronautics Administration.—Donald H. Connolly, Administrator.

Civil Aeronautics Board.—Harllee Branch, Chairman.

Director of the Bureau of Foreign and Domestic Commerce.—James W. Young.

Director of the National Bureau of Standards.—Lyman J. Briggs.

Director of the Coast and Geodetic Survey.—L. O. Colbert.

Director of the Bureau of Marine Inspection and Navigation.—Commander Richard S. Field.

Commissioner of the Patent Office.—Conway P. Coe.

Inland Waterways Corporation.—Chester C. Thompson, President-Chairman.

Weather Bureau.—Francis W. Reichelderfer.

DEPARTMENT OF LABOR

Secretary of Labor.—Frances Perkins.

Charged with the duty of fostering, promoting and developing the welfare of the wage earners of the United States and also working towards a solution of labor problems.

The Assistant Secretary.—Charles V. McLaughlin.

Second Assistant Secretary.—Daniel W. Tracy.

Assistant to the Secretary.—(Vacant).

Administrative Assistant to the Secretary.—Frances Turkowitz.

Special Assistant to the Secretary.—Mary La Dame.

Solicitor.—Gerald D. Reilly.

Chief Clerk.—Samuel J. Gompers.

Director of Conciliation.—John R. Steelman.

Director of Labor Standards.—Verne A. Zimmer.

Commissioner of Labor Statistics.—Isador Lubin.

Chief of the Children's Bureau.—Katharine F. Lenroot.

Director of the Women's Bureau.—Mary Anderson.

Wage and Hour Division.—Colonel Philip B. Fleming, Administrator.

Division of Public Contracts.—L. Metcalfe Walling, Administrator.

MISCELLANEOUS EXECUTIVE SERVICES

Civil Service Commission.—Harry B. Mitchell, President; Mrs. Lucille F. McMillin, Arthur S. Flemming.

Interstate Commerce Commission.—Joseph B. Eastman, Chairman; Clyde B. Aitchison, Claude R. Porter, William E. Lee, Charles D. Mahaffie, Walter M. W. Splawn, Carroll Miller, John L. Rogers, J. Haden Alldredge, William J. Patterson, J. Monroe Johnson.

United States Employees' Compensation Commission.—Mrs. Jewell W. Swofford, Chairman; John M. Morin, John J. Keegan.

General Accounting Office.—Lindsay C. Warren, Comptroller General of the United States.

Federal Reserve Board.—Mariner S. Eccles, Chairman; Ronald Ramson, Vice Chairman; M. S. Szymczak, John K. McKee, Chester C. Davis, Ernest G. Draper.

Federal Trade Commission.—Charles H. March, Chairman; R. E. Freer, W. A. Ayres, Garland S. Ferguson, Ewin L. Davis, Otis B. Johnson, Secretary.

United States Tariff Commission.—Raymond B. Stevens, Chairman; Oscar B. Ryder, Vice Chairman; Edgar B. Brossard, E. Dana Durand, A. Manuel Fox, Fred H. Brown; Sidney Morgan, Secretary.

United States Board of Tax Appeals.—C. Rogers Arundell, Chairman.

Federal Power Commission.—Leland Olds, Chairman; Claude L. Draper, Vice Chairman; Basil Manly, John W. Scott, Clyde L. Seavey.

Federal Communications Commission.—James Lawrence Fly, Chairman.

Veterans' Administration.—Brigadier General Frank T. Hines, Administrator.

Federal Board of Hospitalization.—Brigadier General Frank T. Hines, Chairman.

The Joint Board.—Lt. Col. William P. Scobey, Secretary.

The Army and Navy Munitions Board.—Col. Charles Hines, Secretary.

The Joint Economy Board.—Jarvis Butler, Secretary.

United States Council of National Defense.—Secretary of War, Chairman.

United States Maritime Commission.—Rear Admiral Emory S. Land, Chairman.

Maritime Labor Board.—Robert W. Bruere, Chairman.

National Advisory Committee for Aeronautics.—Dr. Vannevar Bush, Chairman.

Federal Board of Surveys and Maps.—C. L. Garner, Chairman.

The Commission of Fine Arts.—Gilmore D. Clarke, Chairman.

National Mediation Board.—George A. Cook, Chairman.

National Capital Park and Planning Commission.—Frederic A. Delano, Chairman.

Smithsonian Institution.—

Established 1846 under the terms of the will of James Smithson for the "increase and diffusion of knowledge among men." The former aim is accomplished by the promoting of original, scientific research, and the latter by publications and lectures. The affairs of the institution are managed by a Board of Regents which cooperates with the Government and with National scientific bodies. Under the direction of the Institution are the National Museum, charged with preserving and utilizing objects of art and ethnological, geological and mineralogical collections belonging to the United States; Bureau of American Ethnology, National Gallery of Art, Freer Gallery of Art, National Zoological Park, Astrophysical Observatory, and the Regional Bureau for the United States International Catalogue of Scientific Literatures.

Secretary.—C. G. Abbot.

National Academy of Sciences.—Frank B. Jewett, President; Arthur L. Day, Vice President; Frederick E. Wright, Home Secretary; L. J. Henderson, Foreign Secretary; Ross G. Harrison, Chairman of the National Research Council.

Pan-American Union.—L. S. Rowe, Director General.

American National Red Cross.—Norman H. Davis, Chairman.

Permanent Joint Board on Defense.—F. H. La Guardia, Chairman.

Securities and Exchange Commission.—Jerome N. Frank, Chairman.

Tennessee Valley Authority.—Harcourt A. Morgan, Chairman; David E. Lilienthal, James P. Pope.

Federal Deposit Insurance Corporation.—Leo T. Crowley, Chairman.

National Labor Relations Board.—H. A. Millis, Chairman.

Railroad Retirement Board.—Murray W. Latimer, Chairman.

The National Archives.—R. D. W. Connor, Archivist.

Federal Loan Agency.—Jesse H. Jones, Administrator.

- Reconstruction Finance Corporation.—Emil Schram, Chairman.
- Federal Housing Administration.—Abner H. Ferguson, Administrator.
- Federal Home Loan Bank Board.—John H. Fahey, Chairman.
- Home Owners' Loan Corporation.—John H. Fahey, Chairman.

Federal Security Agency.—Paul V. McNutt, Administrator.

- Social Security Board.—Arthur J. Altmeyer, Chairman.
- Public Health Service.—Thomas Parran, Surgeon General.
- U. S. Office of Education.—John W. Studebaker, Commissioner.
- Federal Advisory Board for Vocational Education.—Clarence Poe, Chairman.
- National Youth Administration.—Aubrey Williams, Administrator.
- Civilian Conservation Corps.—James J. McEntee, Director.
- Food and Drug Administration.—W. G. Campbell, Administrator.

Federal Works Agency.—John M. Carmody, Administrator.

- Works Projects Administration.—Howard O. Hunter, Acting Commissioner.
- Public Works Administration.—M. E. Gilmore, Commissioner.
- Public Roads Administration.—Thomas H. MacDonald, Chief.
- United States Housing Authority.—Nathan Straus, Administrator.

MEMBERS OF THE SENATE

COMPILED FROM THE CONGRESSIONAL DIRECTORY, YEAR, 1941

(Dates show beginning of service in the Senate. Names of Republicans are in Roman type; those of Democrats in *Italic;* Farmer Labor in ROMAN CAPS; Progressive in SMALL CAPS.

ALABAMA

John H. Bankhead, 2d (1931).
Lister Hill (1938).

ARIZONA

Carl Hayden (1927).
Ernest W. McFarland (1940).

ARKANSAS

H. W. Caraway (1931).
John E. Miller (1937).

CALIFORNIA

Hiram W. Johnson (1917).
Sheridan Downey (1938).

COLORADO

Alva B. Adams (1933).
Edwin C. Johnson (1936).

CONNECTICUT

Francis T. Maloney (1935).
John A. Danaher (1938).

DELAWARE

James H. Hughes (1936).
James M. Tunnell (1940).

FLORIDA

Charles O. Andrews (1936).
Claude Pepper (1936).

GEORGIA

Walter F. George (1922).
Richard B. Russell (1933).

IDAHO

D. Worth Clark (1938).
John Thomas (1940).

ILLINOIS

Scott W. Lucas (1938).
C. Wayland Brooks (1940).

INDIANA

Frederick Van Nuys (1933).
Raymond E. Willis (1940).

IOWA

Guy M. Gillette (1936).
Clyde L. Herring (1936).

KANSAS

Arthur Capper (1919).
Clyde M. Reed (1938).

KENTUCKY

Alben W. Barkley (1927).
A. B. Chandler (1939).

LOUISIANA

John H. Overton (1933).
Allen J. Ellender (1936).

MAINE

Wallace H. White, Jr. (1931).
Ralph O. Brewster (1940).

MARYLAND

Millard E. Tydings (1927).
George L. Radcliffe (1935).

MASSACHUSETTS

David I. Walsh (1926).
Henry Cabot Lodge, Jr. (1936).

MICHIGAN

Arthur H. Vandenberg (1928).
Prentiss M. Brown (1936).

MINNESOTA

Henrik Shipstead (1923).
Joseph H. Ball (1940).

MISSISSIPPI

Pat Harrison (1919).
Theodore G. Bilbo (1935).

MISSOURI

Bennett C. Clark (1933).
Harry S. Truman (1935).

MONTANA

Burton K. Wheeler (1923).
James E. Murray (1935).

NEBRASKA

GEORGE W. NORRIS (1913).
Hugh A. Butler (1940).

NEVADA

Patrick McCarran (1932).
Berkeley L. Bunker (1940).

NEW HAMPSHIRE

H. Styles Bridges (1936).
Charles W. Tobey (1938).

NEW JERSEY

William H. Smathers (1936).
W. Warren Barbour (1938).

NEW MEXICO

Carl A. Hatch (1934).
Dennis Chavez (1935).

NEW YORK

Robert F. Wagner (1927).
James M. Mead (1938).

NORTH CAROLINA

Josiah W. Bailey (1931).
Robert R. Reynolds (1932).

NORTH DAKOTA

Gerald P. Nye (1925).
William Langer (1940).

OHIO

Robert A. Taft (1938).
Harold H. Burton (1940).

OKLAHOMA

Elmer Thomas (1927).
Josh Lee (1936).

OREGON

Charles L. McNary (1918).
Rufus C. Holman (1938).

PENNSYLVANIA

James J. Davis (1931).
Joseph F. Guffey (1935).

RHODE ISLAND

Peter G. Gerry (1935).
Theodore F. Green (1936).

SOUTH CAROLINA

Ellison D. Smith (1909).
James F. Byrnes (1931).

SOUTH DAKOTA

William J. Bulow (1931).
Chan Gurney (1938).

TENNESSEE

Kenneth McKellar (1917).
Tom Stewart (1938).

TEXAS

Morris Sheppard (1913).
Tom Connally (1929).

UTAH

Elbert D. Thomas (1933).
Abe Murdock (1940).

VERMONT

Warren R. Austin (1931).
George D. Aiken (1940).

VIRGINIA

Carter Glass (1920).
Harry F. Byrd (1933).

WASHINGTON

Homer T. Bone (1933).
Mon C. Wallgren (1940).

WEST VIRGINIA

Matthew M. Neely (1931).
Harley M. Kilgore (1940).

WISCONSIN

ROBERT M. LA FOLLETTE, JR. (1925).
Alexander Wiley (1938).

WYOMING

Joseph C. O'Mahoney (1933).
H. H. Schwartz (1936).

MEMBERS OF THE HOUSE OF REPRESENTATIVES

COMPILED FROM THE CONGRESSIONAL DIRECTORY, YEAR, 1941

(Dates show beginning of service in the House. Names of Republicans are in Roman type; those of Democrats in *Italic;* Farmer Labor in ROMAN CAPS; Progressive in SMALL CAPS.)

ALABAMA

1. *Frank W. Boykin* (1935).
2. *George M. Grant* (1938).
3. *Henry B. Steagall* (1914).
4. *Sam Hobbs* (1935).
5. *Joe Starnes* (1935).
6. *Pete Jarman* (1936).
7. *Walter W. Bankhead* (1940).
8. *John J. Sparkman* (1936).
9. *Luther Patrick* (1936).

ARIZONA

At Large—*John R. Murdock* (1936).

ARKANSAS

1. *E. C. Gathings* (1938).
2. *Wilbur D. Mills* (1938).
3. *Clyde T. Ellis* (1938).
4. *Fadjo Cravens* (1939).
5. *David D. Terry* (1934).
6. *W. F. Norrell* (1938).
7. *Oren Harris* (1940).

CALIFORNIA

1. *Clarence F. Lea* (1917).
2. Harry L. Englebright (1926).
3. *Frank H. Buck* (1933).
4. Thomas Rolph (1940).
5. Richard J. Welch (1925).
6. Albert E. Carter (1925).
7. *John H. Tolan* (1935).
8. John Z. Anderson (1938).
9. Bertrand W. Gearhart (1935).
10. *Alfred J. Elliott* (1937).
11. Carl Hinshaw (1938).
12. *Jerry Vorrhis* (1936).
13. *Charles Kramer* (1933).
14. *Thomas F. Ford* (1933).
15. *John M. Costello* (1935).
16. Leland M. Ford (1938).
17. *Lee E. Geyer* (1938).
18. Ward Johnson (1940).
19. *Harry R. Sheppard* (1936).
20. *Ed. V. Izac* (1936).

COLORADO

1. *Lawrence Lewis* (1933).
2. William S. Hill (1940).
3. J. Edgar Chenoweth (1940).
4. *Edward T. Taylor* (1909).

CONNECTICUT

At Large—*Lucien J. Maciora* (1940).

1. *Herman P. Kopplemann* (1940).
2. *William J. Fitzgerald* (1940).
3. *James A. Shanley* (1935).
4. *Le Roy D. Downs* (1940).
5. *J. Joseph Smith* (1935).

DELAWARE

At Large—*Philip A. Traynor* (1940).

FLORIDA

1. *J. Hardin Petersen* (1933).
2. *Lex Green* (1938).
3. *Robert L. F. Sikes* (1940).
4. *Pat Cannon* (1938).
5. *Joe Hendricks* (1936).

GEORGIA

1. *Hugh Peterson* (1935).
2. *E. E. Cox* (1925).
3. *Stephen Pace* (1936).
4. *A. Sidney Camp* (1939).
5. *Robert Ramspeck* (1929).
6. *Carl Vinson* (1914).
7. *Malcolm C. Tarver* (1927).
8. *John S. Gibson* (1940).
9. *B. Frank Whelchel* (1935).
10. *Paul Brown* (1933).

IDAHO

1. *Compton I. White* (1933).
2. Henry C. Dworshak (1938)

ILLINOIS

At Large—Stephen A. Day (1940).
William G. Stratton (1940).

1. *Arthur W. Mitchell* (1935).
2. *Raymond S. McKeough* (1935).
3. *Edward A. Kelly* (1931).
4. *Harry P. Beam* (1931).
5. *Adolph J. Sabath* (1907).
6. *Anton F. Maciejewski* (1938).
7. *Leonard W. Schuetz* (1931).
8. *Leo Kocialkowski* (1933).
9. Charles S. Dewey (1940).
10. George A. Paddock (1940).
11. Chauncey W. Reed (1935).
12. Noah M. Mason (1936).
13. Leo E. Allen (1933).
14. Anton J. Johnson (1938).
15. Robert B. Chiperfield (1938).
16. Everett M. Dirksen (1933).
17. Leslie C. Arends (1935).
18. Jessie Sumner (1938).
19. William H. Wheat (1938).
20. *James M. Barnes* (1938).
21. Evan Howell (1940).
22. *Edwin M. Schaefer* (1933).
23. *Laurence F. Arnold* (1936).
24. James V. Heidinger (1940).
25. C. W. (Runt) Bishop (1940).

INDIANA

1. *William T. Schulte* (1933).
2. Charles A. Halleck (1935).
3. Robert A. Grant (1938).
4. George W. Gillie (1938).
5. Forest A. Harness (1938).
6. Noble J. Johnson (1938).
7. Gerald W. Landis (1938).
8. *John W. Boehne, Jr.* (1933).
9. Earl Wilson (1940).
10. Raymond S. Springer (1938).
11. *William H. Larrabee* (1931).
12. *Louis Ludlow* (1929).

IOWA

1. Thomas E. Martin (1938).
2. *William S. Jacobsen* (1936).
3. John W. Gwynne (1935).
4. H. O. Talle (1938).
5. Karl M. Le Compte (1938).
6. Paul Cunningham (1940).
7. Ben F. Jensen (1938).
8. Fred C. Gilchrist (1931).
9. *Vincent F. Harrington* (1936).

KANSAS

1. W. P. Lambertson (1929).
2. U. S. Guyer (1926).
3. Thomas D. Winter (1938).
4. Edward H. Rees (1936).
5. *John M. Houston* (1935).
6. Frank Carlson (1935).
7. Clifford R. Hope (1926).

KENTUCKY

1. *Noble J. Gregory* (1936).
2. *Beverly M. Vincent* (1937).
3. *Emmet O'Neal* (1935).
4. *Edward W. Creal* (1935).
5. *Brent Spence* (1931).
6. *Virgil Chapman* (1931).
7. *Andrew J. May* (1931).
8. *Joe B. Bates* (1938).
9. John M. Robsion (1935).

LOUISIANA

1. *F. Edward Hebert* (1940).
2. *Hale Boggs* (1940).
3. *James Domengeaux* (1940).
4. *Overton Brooks* (1936).
5. *Newt V. Mills* (1936).
6. *Jared Y. Sanders, Jr.* (1940).
7. *Vance Plauché* (1940).
8. *A. Leonard Allen* (1936).

MAINE

1. James C. Oliver (1936).
2. Margaret Chase Smith (1940).
3. Frank Fellows (1940).

MARYLAND

1. *David J. Ward* (1939).
2. *Wm. P. Cole, Jr.* (1931).
3. *Thomas D'Alesandro, Jr.* (1938).
4. *John A. Meyer* (1940).
5. *Lansdale G. Sasscer* (1939).
6. *William D. Byron* (1938)

MASSACHUSETTS

1. A. T. Treadway (1913).
2. Charles R. Clason (1936).
3. *Joseph E. Casey* (1935).
4. Pehr G. Holmes (1931).
5. Edith N. Rogers (1925).
6. George J. Bates (1936).
7. *Lawrence J. Connery* (1937).
8. *Arthur D. Healey* (1933).
9. *Thomas H. Eliot* (1940).
10. G. H. Tinkham (1915).
11. *Thomas A. Flaherty* (1937).
12. *J. W. McCormack* (1928).
13. R. B. Wigglesworth (1928).
14. J. W. Martin, Jr. (1925).
15. Charles L. Gifford (1922).

MICHIGAN

1. *Rudolph G. Tenerowicz* (1938).
2. Earl C. Michener (1935).
3. Paul W. Shafer (1936).
4. Clare E. Hoffman (1935).
5. Bartel J. Jonkman (1940).
6. William W. Blackney (1938).
7. Jesse P. Wolcott (1931).
8. Fred L. Crawford (1935).
9. Albert J. Engel (1935).
10. Roy O. Woodruff (1921).
11. Fred Bradley (1938).
12. *Frank E. Hook* (1935).
13. *George D. O'Brien* (1940).
14. *Louis C. Rabaut* (1935).
15. *John D. Dingell* (1933).
16. *John Lesinski* (1933).
17. George A. Dondero (1933).

MINNESOTA

1. August H. Andresen (1935).
2. Joseph P. O'Hara (1940).
3. Richard P. Gale (1940).
4. Melvin J. Maas (1935).
5. Oscar Youngdahl (1938).
6. Harold Knutson (1917).
7. H. Carl Andersen (1938).
8. William A. Pittenger (1938).
9. R. T. BUCKLER (1935).

MISSISSIPPI

1. *John E. Rankin* (1921).
2. *Wall Doxey* (1929).
3. *W. M. Whittington* (1925).
4. *A. L. Ford* (1935).
5. *Ross A. Collins* (1936).
6. *William M. Colmer* (1933).
7. *Dan R. McGehee* (1935).

MISSOURI

1. *M. A. Romjue* (1923).
2. *William J. Nelson* (1935).
3. *Richard M. Duncan* (1933).
4. *C. Jasper Bell* (1935).
5. *Joseph B. Shannon* (1931).
6. Philip A. Bennett (1940).
7. Dewey Short (1935).
8. *Clyde Williams* (1931).
9. *Clarence Cannon* (1923).
10. *Orville Zimmerman* (1935).
11. *John B. Sullivan* (1940).
12. Walter C. Ploeser (1940).
13. *John J. Cochran* (1927).

MONTANA

1. Jeannette Rankin (1940).
2. *James F. O'Connor* (1936).

NEBRASKA

1. Oren S. Copeland (1940).
2. *Charles F. McLaughlin* (1935).
3. Karl Stefan (1935).
4. Carl T. Curtis (1938).
5. *Harry B. Coffee* (1935).

NEVADA

At Large—*James G. Scrugham* (1933).

NEW HAMPSHIRE

1. Arthur B. Jenks (1936).
2. Foster Stearns (1938).

NEW JERSEY

1. C. A. Wolverton (1926).
2. *Elmer H. Wene* (1940).
3. *William H. Sutphin* (1931).
4. D. Lane Powers (1933).
5. Charles A. Eaton (1925).
6. Donald H. McLean (1933).
7. J. Parnell Thomas (1936).
8. Gordon Canfield (1940).
9. Frank C. Osmers, Jr. (1938).
10. F. A. Hartley, Jr. (1929).
11. Albert L. Vreeland (1938).
12. Robert W. Kean (1938).
13. *Mary T. Norton* (1925).
14. *Edward J. Hart* (1935).

MEMBERS OF THE HOUSE OF REPRESENTATIVES

NEW MEXICO

At Large—*Clinton P. Anderson* (1940).

NEW YORK

At Large—*Matthew J. Merritt* (1935).
Caroline O'Day (1935).
1. Leonard W. Hall (1938).
2. *W. B. Barry* (1935).
3. *Joseph L. Pfeifer* (1935).
4. *Thomas H. Cullen* (1919).
5. *James J. Heffernan* (1940).
6. *Andrew L. Somers* (1925).
7. *John J. Delaney* (1931).
8. *Donald L. O'Toole* (1936).
9. *Eugene J. Keogh* (1936).
10. *Emanuel Celler* (1923).
11. *James A. O'Leary* (1935).
12. *Samuel Dickstein* (1923).
13. *Louis J. Capozzoli* (1940).
14. *M. Michael Edelstein* (1940).
15. *Michael J. Kennedy* (1938).
16. William T. Pheiffer (1940).
17. Kenneth F. Simpson (1940).
18. *M. J. Kennedy* (1930).
19. *Sol Bloom* (1923).
20. VITO MARCANTONIO (1938).
21. *J. A. Gavagan* (1929).
22. *Walter A. Lynch* (1940).
23. *Charles A. Buckley* (1935).
24. *J. M. Fitzpatrick* (1926).
25. Ralph A. Gamble (1937).
26. Hamilton Fish (1920).
27. Lewis K. Rockefeller (1937).
28. *William T. Byrne* (1936).
29. E. Harold Cluett (1936).
30. Frank Crowther (1919).
31. Clarence E. Kilburn (1940).
32. Francis D. Culkin (1928).
33. Fred J. Douglas (1936).
34. Edwin Arthur Hall (1939).
35. C. E. Hancock (1927).
36. John Taber (1923).
37. W. Sterling Cole (1935).
38. Joseph J. O'Brien (1938).
39. James W. Wadsworth (1933).
40. Walter G. Andrews (1931).
41. *Alfred F. Beiter* (1940).
42. *Pius L. Schwert* (1938).
43. Daniel A. Reed (1919).

NORTH CAROLINA

1. *Herbert C. Bonner* (1940).
2. *John H. Kerr* (1923).
3. *Graham A. Barden* (1935).
4. *Harold D. Cooley* (1935).
5. *Alonzo D. Folger* (1938).
6. *Carl T. Durham* (1938).
7. *J. Bayard Clark* (1929).
8. W. O. Burgin (1938).
9. *R. L. Doughton* (1911).
10. *A. L. Bulwinkle* (1931).
11. *Zebulon Weaver* (1931).

NORTH DAKOTA

At Large—Usher L. Burdick (1935).
Charles R. Robertson (1940).

OHIO

At Large—George H. Bender (1938).
Stephen M. Young (1940).
1. Charles H. Elston (1938).
2. William E. Hess (1938).
3. *Greg Holbrock* (1940).
4. Robert F. Jones (1938).
5. Cliff Clevenger (1938).
6. *Jacob E. Davis* (1940).
7. Clarence J. Brown (1938).
8. Frederick C. Smith (1938).
9. *John F. Hunter* (1936).
10. T. A. Jenkins (1925).
11. *Harold K. Claypool* (1936).
12. John M. Vorys (1938).
13. A.D. Baumhart, Jr. (1940).
14. *Dow W. Harter* (1933).
15. *Robert T. Secrest* (1933).
16. *William R. Thom* (1940).
17. J. Harry McGregor (1940).
18. *Lawrence E. Imhoff* (1940).
19. *Michael J. Kirwan* (1936).
20. *Martin L. Sweeney* (1931).
21. *Robert Crosser* (1923).
22. Frances P. Bolton (1940).

OKLAHOMA

At Large—*Will Rogers* (1933).
1. *Wesley E. Disney* (1931).
2. *Jack Nichols* (1935).
3. *Wilburn Cartwright* (1927).
4. *Lyle H. Boren* (1936).
5. *A.S. Mike Monroney* (1938).
6. *Jed Johnson* (1926).
7. *Sam C. Massingale* (1935).
8. Ross Rizley (1940).

OREGON

1. James W. Mott (1933).
2. *Walter M. Pierce* (1933).
3. Homer D. Angell (1938).

PENNSYLVANIA

1. *Leon Sacks* (1936).
2. *James P. McGranery* (1936).
3. *Michael J. Bradley* (1936).
4. *John Edward Sheridan* (1939).
5. *Francis R. Smith* (1940).
6. *Francis J. Myers* (1938).
7. Hugh D. Scott, Jr. (1940).
8. James Wolfenden (1928).
9. Charles L. Gerlach (1938).
10. J. R. Kinzer (1930).
11. *Patrick J. Boland* (1931).
12. *J. Harold Flannery* (1936).
13. Ivor D. Fenton (1938).
14. *Guy L. Moser* (1936).
15. Albert G. Rutherford (1936).
16. Robert F. Rich (1930).
17. J. William Ditter (1933).
18. Richard M. Simpson (1937).
19. John C. Kunkel (1938).
20. Benjamin Jarrett (1936).
21. *Francis E. Walter* (1933).
22. *Harry L. Haines* (1940).
23. James E. Van Zandt (1938).
24. *J. Buell Snyder* (1933).
25. *Charles I. Faddis* (1933).
26. Louis E. Graham (1938).
27. Harve Tibbott (1938).
28. *Robert G. Allen* (1936).
29. Robert L. Rodgers (1938).
30. *Thomas E. Scanlon* (1940).
31. *Samuel A. Weiss* (1940).
32. *Herman P. Eberharter* (1936).
33. *Joseph A. McArdle* (1938).
34. *James A. Wright* (1940).

RHODE ISLAND

1. *Aime J. Forand* (1940).
2. *John E. Fogarty* (1940).

SOUTH CAROLINA

1. *L. Mendel Rivers* (1940).
2. *H. P. Fulmer* (1921).
3. *Butler B. Hare* (1938).
4. *Joseph R. Bryson* (1938).
5. *James P. Richards* (1933).
6. *John L. McMillan* (1938).

SOUTH DAKOTA

1. Karl E. Mundt (1938).
2. Francis Case (1936).

TENNESSEE

1. B. Carroll Reece (1933).
2. John Jennings, Jr., (1940).
3. *Estes Kefauver* (1939).
4. *Albert Gore* (1938).
5. *J. Percy Priest* (1940).
6. *Wirt Courtney* (1939).
7. *Herron Pearson* (1935).
8. *Jere Cooper* (1929).
9. *Clifford Davis* (1940).

TEXAS

1. *Wright Patman* (1929).
2. *Martin Dies* (1931).
3. *Lindley Beckworth* (1938).
4. *Sam Rayburn* (1913).
5. *H. W. Sumners* (1913).
6. *Luther A. Johnson* (1923).
7. *Nat Patton* (1935).
8. *Albert Thomas* (1936).
9. *J. J. Mansfield* (1917).
10. *Lyndon B. Johnson* (1937).
11. *William R. Poage* (1936).
12. *Fritz G. Lanham* (1919).
13. *Ed Gossett* (1938).
14. *Richard M. Kleberg* (1931).
15. *Milton H. West* (1933).
16. *R. Ewing Thomason* (1938).
17. *Sam M. Russell* (1940).
18. *Eugene Worley* (1940).
19. *George H. Mahon* (1935).
20. *Paul J. Kilday* (1938).
21. *Charles L. South* (1935).

UTAH

1. *Elbert D. Thomas* (1940).
2. *J. W. Robinson* (1933).

VERMONT

At Large—Charles A. Plumley (1935).

VIRGINIA

1. *Schuyler O. Bland* (1918).
2. *Colgate W. Darden, Jr.* (1938).
3. *Dave E. Satterfield, Jr.* (1937).
4. *Patrick H. Drewry* (1920).
5. *Thomas G. Burch* (1931).
6. *C. A. Woodrum* (1923).
7. *A. Willis Robertson* (1933).
8. *Howard W. Smith* (1931).
9. *John W. Flannagan, Jr.* (1931).

WASHINGTON

1. *Warren G. Magnuson* (1936).
2. *Henry M. Jackson* (1940).
3. *Martin F. Smith* (1933).
4. *Knute Hill* (1933).
5. *Charles H. Leavy* (1936).
6. *John M. Coffee* (1936).

WEST VIRGINIA

1. *Robert L. Ramsay* (1940).
2. *Jennings Randolph* (1933).
3. *Andrew Edmiston* (1933).
4. *George W. Johnson* (1933).
5. *John Kee* (1933).
6. *Joe L. Smith* (1929).

WISCONSIN

1. Stephen Bolles (1938).
2. HARRY SAUTHOFF (1940).
3. William H. Stevenson (1940).
4. *Thad F. Wasielewski* (1940).
5. Lewis D. Thill (1938).
6. Frank B. Keefe (1938).
7. Reid F. Murray (1938).
8. Joshua L. Johns (1938).
9. MERRLIN HULL (1935).
10. B. J. GEHRMANN (1935).

WYOMING

At Large—*John J. McIntyre* (1940).

ALASKA

Anthony J. Dimond (1933).

HAWAII

Samuel W. King (1935).

PHILIPPINE ISLANDS

Joaquin M. Elizalde (1938).

PUERTO RICO

Bolivar Pagán (1940).

FEDERAL JUDICIAL ORGANIZATION

By William M. Schuyler

Editor, *The American Year Book*

SUPREME COURT OF THE UNITED STATES

Charles Evans Hughes (New York), Chief Justice of the United States, appointed 1930.

James Clark McReynolds (Kentucky), appointed 1914.

Harlan F. Stone (New Hampshire), appointed 1925.

Owen J. Roberts (Pennsylvania), appointed 1930.

Felix Frankfurter (Massachusetts), appointed 1939.

Hugo L. Black (Alabama), appointed 1937.

Stanley F. Reed (Kentucky), appointed 1938.

William Orville Douglas (Minnesota), appointed 1939.

Frank Murphy (Michigan), appointed 1940.

Officers of the Supreme Court: Clerk—Charles Elmore Cropley.

Deputy Clerks.—Reginald C. Dilli, Hugh W. Barr.

Marshal.—Thomas E. Waggaman.

Reporter.—Ernest Knabel.

Librarian.—Oscar D. Clarke.

CIRCUIT COURT OF APPEALS OF THE UNITED STATES

First Circuit.—Mr. Justice Frankfurter; Calvert Magruder (Massachusetts), John C. Mahoney (Rhode Island).

Second Circuit.—Mr. Justice Stone; Learned Hand (New York), Thomas W. Swan (Connecticut), Augustus N. Hand (New York), Harrie Brigham Chase (Vermont), Charles E. Clark (Connecticut).

Third Circuit.—Mr. Justice Roberts; William Clark (New Jersey), Albert Branson Maris (Pennsylvania), John Biggs, Jr. (Delaware), Charles Alvin Jones (Pennsylvania), Herbert F. Goodrich (Pennsylvania).

Fourth Circuit.—Mr. Chief Justice Hughes; John J. Parker (North Carolina), Morris A. Soper (Maryland), Armistead M. Dobie (Virginia).

Fifth Circuit.—Mr. Justice Black; Rufus E. Foster (Louisiana), Samuel H. Sibley (Georgia), Joseph C. Hutcheson, Jr. (Texas), Edwin R. Holmes (Mississippi), Leon McCord (Alabama).

Sixth Circuit.—Mr. Justice McReynolds; Xenophon Hicks (Tennessee), Elwood Hamilton (Kentucky), Charles C. Simons (Michigan), Florence E. Allen (Ohio).

Seventh Circuit.—Mr. Justice Murphy; Evan A. Evans (Wisconsin), William M. Sparks (Indiana), J. Earl Major (Illinois), Walter E. Treanor (Indiana), Otto Kerner (Illinois).

Eighth Circuit.—Mr. Justice Reed; Kimbrough Stone (Missouri), John B. Sanborn (Minnesota), Archibald K. Gardner (South Dakota), Joseph W. Woodrough (Nebraska), Seth Thomas (Iowa).

Ninth Circuit.—Mr. Justice Douglas; Curtis D. Wilbur (California), Francis A. Garrecht (Washington), William Denman (California), Clifton Mathews (Arizona), Bert E. Haney (Oregon), Albert Lee Stephens (California), William Healey (Idaho).

Tenth Circuit.—Mr. Justice Reed; Orie L. Phillips (Colorado), Sam G. Bratton (New Mexico), Walter A. Huxman (Kansas), Alfred P. Murrah (Oklahoma).

UNITED STATES COURT OF CUSTOMS AND PATENT APPEALS

Finis James Garrett (Tennessee), Presiding Judge, appointed 1929.

Oscar E. Bland (Indiana), appointed 1923.

Charles Sherrod Hatfield (Ohio), appointed 1923.

Irvine L. Lenroot (Wisconsin), appointed 1929.

Joseph R. Jackson (Montana), appointed 1937.

UNITED STATES COURT OF APPEALS FOR THE DISTRICT OF COLUMBIA

D. Lawrence Groner, Chief Justice.
Harold M. Stephens.
Justin Miller.
Henry White Edgerton.
Fred M. Vinson.
Wiley Rutledge.

COURT OF CLAIMS OF THE UNITED STATES

Richard S. Whaley (South Carolina), Chief Justice, appointed 1939.

Benjamin H. Littleton (Tennessee), appointed 1929.

Samuel E. Whitaker (Tennessee), appointed 1939.

DISTRICT COURT OF THE UNITED STATES FOR THE DISTRICT OF COLUMBIA

Alfred A. Wheat, Chief Justice.
James M. Proctor.
F. Dickinson Letts.
Daniel W. O'Donoghue.
Jennings Bailey.
Peyton Gordon.
Oscar R. Luhring.
T. Alan Goldsborough.
James W. Morris.
Jesse C. Adkins.
Bolitho J. Laws.
David A. Pine.

UNITED STATES CUSTOMS COURT

Webster J. Oliver, Presiding Judge.
George S. Brown.
Walter H. Evans.
William J. Tilson.
Frederick W. Dallinger.
Genevieve R. Cline.
David H. Kincheloe.
William J. Keefe.
Thomas J. Walker.

UNITED STATES MARSHAL'S OFFICE

United States Marshal.—John B. Colpoys.

Chief Deputy Marshal.—C. Michael Kearney.

UNITED STATES ATTORNEY'S OFFICE

United States Attorney, District of Columbia.—Edward M. Curran.

Assistants.—John W. Fihelly, Charles B. Murray, George E. McNeil, Cecil R. Heflin, Allen J. Krouse, William Hitz, Jr., Arthur B. Caldwell, Arthur J. McLaughlin, John W. Jackson, John H. Mitchell, William S. Tarver, Grace B. Stiles, Brewster H. Marshall, Bernard J. Long, Evan T. Davis, John B. Diamond, John L. Laskey, John L. Smith, Maurice F. McInerney, Dennis McCarthy, Bernard Margolius.

FEDERAL PROSECUTIONS AND JUDICIAL DECISIONS

By Paul A. Freund
Professor, Harvard Law School

GENERAL

The first annual report of the director of the Administrative Office of the United States Courts was received by the Judicial Conference in Washington in October, 1940. The director, appointed by the Supreme Court pursuant to statute, presented extensive statistical data on the business of the lower Federal courts. Of special interest are the figures showing the bulk of cases in which the Federal Government is a party. During the fiscal year 1940, the Government brought 10,415 cases and 2,171 were brought against it, while the total of cases between private parties was 14,170, only slightly greater. During the past several years there has been a steady decline in the number of private cases and an increase in government cases.

ANTI-TRUST LAWS

Publications.—During the year two studies of anti-trust enforcement, designed for the general public, appeared: Thurman Arnold's *Bottlenecks of Business,* relating the anti-trust policy to anti-fascism, and Walton Hamilton and Irene Till's *Antitrust in Action,* prepared as a monograph for the Temporary National Economic Committee, suggesting the creation of a single industrial court to hear anti-trust cases.

Food Prices.—The role of anti-trust enforcement in a mobilizing economy was illustrated in the announcement on Nov. 25 of a nationwide investigation of restraints which raise the prices of food to the consumer and reduce the prices received by farmers. Particular attention will be given, it was stated, to bread, milk, meat, fish, cheese, and canned and fresh fruits and vegetables. The investigation was likened to that already undertaken in the building industries (see THE AMERICAN YEAR BOOK, 1939, p. 137), which has resulted in 99 indictments against 1,538 defendants and in 22 civil suits.

Petroleum Industry.—The national defense program may nevertheless set limits on the industrial readjustments that may be sought. The proposal to seek a comprehensive reorganization of the petroleum industry, including the divorcement of production, transportation, and marketing, brought strong protest on the ground that so drastic a step would impede the necessary investment of additional capital in the properties affected. After consideration by the National Defense Advisory Commission, a suit was instituted on Sept. 30 against 22 major oil companies, asking an injunction against numerous alleged practices, including price-fixing, exclusive-dealer arrangements with service stations, and rebates from pipe-line companies, but leaving open the question of fundamental reorganization of the industry, under a general request for such additional relief as the court may deem proper.

The bringing of this suit suggests the protean character of restraints of trade, for the Government shortly theretofore had been successful in two anti-trust cases affecting the oil industry: *Ethyl Gasoline Corp. v. United States,* 309 U. S. 436, involving the use of licenses to maintain a fixed differential in price between regular and ethyl gasoline; and *Socony-Vacuum Oil Co., Inc. v. United States,* 310 U. S. 150 (the "Madison oil case"), involving the maintenance of gasoline prices by coordinated purchasing of tank-car distress gasoline, the price of which determines the price to jobbers and retailers. "In spite of these cases," the Department of Justice states, "the rigid price differential in respect of ethyl still exists, and the price of gasoline continues at its present inflexible level. It is believed that the great advances and technological improvements in the oil industry are not being passed on to consumers because of a wasteful, inefficient distribution system which leads to excessive prices."

Milk Distribution.—An innovation in anti-trust procedure marked the investigation of milk distribution in New York City. For the first time the Department of Justice and a municipal government undertook joint action concerning restraints of trade. In Chicago, the institution of a suit against restraints in the milk industry was followed by a drop of four cents a quart in the store-delivery price; in September a consent decree was entered in the Chicago case, forbidding a variety of practices by distributors, a dealers' bottle exchange, a producers' association, and a drivers' union.

Motion Pictures.—Another innovation is the inclusion of a provision for arbitration of disputes in the consent decree entered in October against five major motion picture companies. The decree forbids the practice of "blind selling" of pictures to exhibitors, and alters the practice of "block booking" by limiting the licensing of blocks of pictures to a maximum of five in a group. The unique arbitration provision will be administered by the American Arbitration Association.

Labor.—The thorny question of the application of the anti-trust laws to labor is in process of resolve. In *Apex Hosiery Co. v. Leader,* 310 U. S. 469, the Supreme Court rejected the union's contention that labor is exempt from the anti-trust laws by virtue of the Clayton Act, but held the union not liable in the circumstances of the case and in so doing opened up wide areas of immunity for labor. The case presented a record of unlawful damage to property in a sit-down strike, together with a refusal of the strikers to permit the withdrawal and shipment of goods for interstate delivery. Since there was no showing that competitive conditions in the market were appreciably affected, the activities of the strikers were not within the intended reach of the Sherman Act, in the view of a majority of the Court. The effect of the decision on the program of Assistant Attorney General Arnold (see THE AMERICAN YEAR BOOK, 1939, p. 136) appears to be substantial, though the Court will be called upon to pass directly on other forms of labor activity, including jurisdictional strikes. Even if effects on the competitive market are found, there will remain the question of justification of the restraint; this may become important in cases involving various forms of secondary boycott. It is not unlikely that in practical outcome labor will be held to be outside the anti-trust laws except where workers combine with employers to impose restraints on the market.

ADMINISTRATIVE LAW

Logan-Walter Bill.—The President's veto of the Logan-Walter bill was sustained by the House on Dec. 18. The bill would have fixed a uniform internal procedure and mode of judicial review for scores of unnamed Federal agencies, while specifically exempting many of the older agencies whose procedures are substantially the same as those of the important newer agencies against which the bill was avowedly directed. Meanwhile the courts have been determining, in a particularistic way, problems of administrative procedure and judicial control.

Representation of Public Interest.—Several cases, otherwise unrelated, raised the question of how the public interest is to be represented in the administrative and judicial process. In *L. Singer and Sons v. Union Pacific Ry. Co.,* and *Kansas City, Mo. v. L. Singer and Sons,* decided Dec. 16, the building by a railroad of lines to serve a new produce market in Kansas City, Kan. was attacked in court by Kansas City, Mo. and by a market operator in that city, on the ground that the public interest did not warrant the building of a line to serve a new market, and that a certificate from the Interstate Commerce Commission should have been sought. The Court held that such an objection could be urged, under the statutory provision for suits by "any party in interest," only by the state commission or the Interstate Commerce Commission.

Corporate Reorganization. — In *S.E.C. v. United States Realty and Improvement Co.,* 310 U. S. 434, the Securities and Exchange Commission was permitted to intervene in a proceeding under the Bankruptcy Act for the adjustment of debts of a corporation in order to urge that the proceeding be dismissed and brought under the corporate reorganization provisions of the statute, which are designed for corporations with a complex securities structure and which would entitle the Commission to disapprove a plan of reorganization which it deemed unfair.

Wage Standards for Bidders.—In *Perkins v. Lukens Steel Co.,* 310 U. S. 113, a number of steel companies, prospective bidders for government contracts, sued to set aside an order of the Secretary of Labor under the Public Contracts Act, setting "prevailing-wage" standards for bidders, on the ground that the division of the industry by the Secretary into six differentiated areas was a misapplication of the statutory provision that prevailing wages be found for "localities." The Court dismissed the companies' complaint, taking the view that, as bidders, they had no standing to challenge an application of a standard that was meant to protect governmental interests.

Radio Station Licenses.—The pattern of entrusting representation of the public interest to official and not to private spokesmen was departed from in *Federal Communications Commission v. Sanders Bros. Radio Station,* 309 U. S. 470. There an existing radio station was permitted to appeal from an order granting a license to a new competitive station, and to attack the order as inconsistent with the public interest. The Court, in construing the statutory provision for appeal by an "aggrieved party," pointed out that unless the existing station could appeal there might be no one to champion the public interest subsequent to the administrative stage of the proceedings.

The spirit with which the present Court approaches the function of review of administrative action was made manifest in the opinion of Mr. Justice Frankfurter in *Federal Communications Commission v. Pottsville Broadcasting Co.,* 309 U. S. 134. The Commission's order denying a station license to an applicant had been reversed by the Court of Appeals of the District of Columbia, and on subsequent administrative hearing the Commission ordered the application to be considered on a comparative basis with rival applications that had meanwhile been filed. The Court of Appeals then ordered the Commission to proceed solely on the basis of the original application and record; the court relied largely on an analogy with the remand of a case by an appellate to an inferior court. The Supreme Court, reversing the Court of Appeals, regarded the analogy as spurious: "Administrative agencies have power themselves to initiate inquiry, or, when their authority is invoked, to control the range of investigation in ascertaining what is to satisfy the requirements of the public interest in relation to the needs of vast regions and sometimes the whole nation in the enjoyment of facilities for transportation, communication and other essential public services. These differences in origin and function preclude wholesale transplantation of the rules of procedure, trial, and review which have evolved from the history and experience of courts. . . . Congress which creates and sustains these agencies must be trusted to correct whatever defects experience may reveal. Interference by courts is not conducive to the development of habits of responsibility in administrative agencies. Anglo-American courts as we now know them are themselves in no small measure the product of a historic process." Thus some of the sharpness which a few years ago marked the Supreme Court's attitude toward administrative agencies is now turned in the direction of the lower Federal courts.

NATIONAL LABOR RELATIONS BOARD

The protective benevolence of the Court toward administrative agencies was particularly marked in Labor Board cases. In two opinions by Mr. Justice Black, with no dissent, the Court employed unusually strong language to set aside lower court decisions which had refused to enforce orders of the Board on the ground that no substantial evidence in the record supported the orders. *N.L.R.B. v. Waterman Steamship Corp.*, 309 U. S. 206; *N.L.R.B. v. Bradford Dyeing Assn.*, 310 U. S. 318. In the former opinion the Court said: "We do not ordinarily grant certiorari to review judgments based solely on questions of fact. In its petition, however, the Board earnestly contended that the record before the Court of Appeals had presented 'clear and overwhelming proof' that the Waterman Steamship Company had been guilty of a most flagrant mass discrimination against its employees in violation of the National Labor Relations Act and that the court had unwarrantedly interfered with the exclusive jurisdiction granted the Board by Congress. The Board's petition also charged that the present was one of a series of decisions in which the court below had failed 'to give effect to the provisions of the Act that the findings of the Board as to facts, if supported by evidence, shall be conclusive.' In that Act, Congress provided, 'The findings of the Board as to the facts, if supported by evidence, shall be conclusive.' It is of paramount importance that courts not encroach upon this exclusive power of the Board if effect is to be given the intention of Congress to apply an orderly, informed and specialized procedure to the complex, administrative problems arising in the solution of industrial disputes. . . . And therefore charges by public agencies constitutionally created—such as the Board—that their duly conferred jurisdiction has been invaded so that their statutory duties cannot be effectively fulfilled, raise questions of high importance. For this reason we granted certiorari."

In the latter case, the Court said: "The Board and its representatives solicitously guarded respondent's and intervenor's right to a full and fair hearing; manifested liberality in ruling upon evidence proposed by both sides; and conducted the proceedings in a manner calculated to bring about a just result. And as we have pointed out, substantial evidence supported the result which the Board did reach. Notwithstanding, the court below declined to order enforcement of the Board's order, and the implications of its opinion are that the Board without a proper regard for either the limitations on its power or the evidence made findings all of which had no substantial support. But in reaching this conclusion the Court of Appeals itself failed to give proper regard to the evidence which was before the Board, which appeared in the record before the court and which we have set out in this opinion. In refusing to enforce the Board's order, the court exceeded the power given it. The cause is reversed and remanded with directions to enforce the Board's order without conditions or qualifications."

A highly controversial issue in the enforcement of the Labor Relations Act is the extent to which statements by employers expressing their views on labor organization may be regarded as unfair labor practices and may be enjoined, consistently with the guaranties of freedom of speech. The issue can hardly be dealt with apart from the context of concrete situations, involving as it does an attempt to locate the point at which persuasion shades into threats and coercion in the area of employer-employee relations. The problem of defining the point in a cease-and-desist order directed toward future conduct presents an added complication. In *Ford Motor Co. v. N.L.R.B.*, 114 F.(2d) 905, the Sixth Circuit Court of Appeals set aside that portion of the Board's order which required the company to refrain from disseminating among its employees statements criticizing labor organizations or advising employees not to join such organizations.

FEDERAL TAXATION

A decision of considerable importance under the income tax law was rendered in *Helvering v. Clifford*, 309 U. S. 331, holding the grantor of a five-year trust for the benefit of his wife taxable on the income of the trust, the grantor having retained the power to determine investments of the principal. There is no specific statutory provision concerning such short-term trusts, and the degree of control retained by the grantor which must be shown to impose an income tax on him is a problem now to be worked out by the Treasury and the courts. In the less than a year that has elapsed since the decision, about 40 cases involving the issue have been brought in the lower courts.

The rule of *stare decisis* was limited in its application to the field of taxation in *Helvering v. Hallock*, 309 U. S. 106. Despite earlier decisions to the contrary, the Court upheld the assessment of a Federal estate tax on a trust created by the decedent during his lifetime, under which he transferred property for the benefit of his wife, the principal to become his, however, if he survived her. The tax was upheld as one on a transfer "intended to take effect in possession or enjoyment" on the grantor's death, within the statutory language. The earlier decisions, taken together, made taxability turn on technical distinctions in the wording of the trusts, and although Congress had not acted to clarify the issue the Court felt that correction should come from the judiciary at the expense of the doctrine of *stare decisis* and, perhaps, of taxpayers who had relied on the earlier technicalities.

The decision suggests the cognate problem of the retroactive application by the Treasury of changes in its tax regulations. The courts have been less tolerant of administrative than of judicial retroactivity. If administrative regulations are followed by Congressional reenactment of the statutory provisions with which the regulations are concerned, the regulations are said to have been given Congressional approval, to have the force of statute, and so to be crystallized beyond change. This concept, which is frequently unrealistic in its view of the legislative process, might preclude even a prospective administrative amendment. Dicta during the past term of Court suggest this result, though the decisions do not support it. So unfortunate a result produced by so artificial a doctrine suggests the need of a fresh study of the problem of administrative flexibility and its relation to the security of transactions. A working solution might be furnished by a statute placing a time limit on the retroactive reach of amended regulations, while leaving the Treasury free to make amendments for the future.

CIVIL SERVICE IN THE UNITED STATES

By Harry B. Mitchell

President, United States Civil Service Commission

NATIONAL DEFENSE

National defense has been the major and all important consideration of the Federal Civil Service the past year. As far back as 1939, special preparedness activities were being engaged in by a number of the Federal agencies, and the Civil Service Commission had one of its heavy years in recruiting civilian workers. The tempo, however, was tremendously stepped up this year after Germany swept through Denmark, Norway, Holland, Belgium and France. The President signed a special message on national defense to Congress on May 16, 1940, and he revived the Council of National Defense under authority of an act of Congress passed in 1916 before the first World War. In July the President allotted the Commission $2,500,000 for work connected with providing the defense establishments with qualified civilian employees at the times and places needed. As during the first World War, the exceptional adaptability and flexibility of the Federal Civil Service system, founded on the broad general principles stated in the original Civil Service Act of 1883, is again being demonstrated.

The Commission recommended to the President certain executive orders to meet emergency needs, and they were approved. It organized its vast recruiting facilities throughout the United States so that the demands of the War and Navy Departments and other defense agencies could be met with utmost promptness. Fullest cooperation has been given by the press, the broadcasting agencies, and the motion picture industry, to give the broadest possible publicity to the notices of the Commission for civilian workers needed in critical trades positions in navy yards, arsenals, air fields, and other defense establishments.

The Commission created positions of liaison officer which it filled by expertly qualified employees from its central office divisions and its field offices, assigning them individually to agencies operating on the preparedness program. Their function is to expedite all personnel transactions in the agencies to which assigned.

Every possible source of skill is being utilized. In cooperation with the National Resources Planning Board, the Commission has collected membership lists of all scientific and professional societies and has established a national roster of scientific and specialized personnel. This roster is maintained on cards for machine sorting and is in regular use where technically qualified persons are needed in a specialized field for which the Commission has no regular eligible list. When the roster is finished it is expected that it will provide a complete and detailed census of the country's resources in professionally trained men and women available for specialized defense work.

More than 200,000 new employees were furnished to the War and Navy Departments through civil service procedure during the calendar year 1940.

LEGISLATION

The passage of the so-called Ramspeck Act, approved Nov. 26, 1940, was the greatest legislative advance of the Federal merit system since the passage of the original act in 1883. With but four exceptions it grants to the President authority to bring within the provisions of the Civil Service Act all positions which have heretofore been exempted from competition by acts of Congress. The exceptions are the Tennessee Valley Authority, the Work Projects Administration, assistant United States district attorneys, and persons appointed by the President and confirmed by the Senate. Certain restrictions are specified to govern the granting of a civil service status to the incumbents of any positions which are covered into the classified service by Executive order. The act also grants eligibility for transfer to the executive civil service to legislative employees under limitations stated in the statute.

The President is authorized by Title II of the act to extend the compensation schedules and the general provisions of the Classification Act of 1923, as amended, to positions and employees not now subject to such provisions, with certain specified exceptions; and Section 7 of the act requires the establishment of boards of review on efficiency ratings.

By a vote of 145 to 110 the United States House of Representatives voted against a proviso in the National Defense Bill which would have permitted appointments to civilian positions in and under the War Department to be made without regard to the merit system established by the Civil Service Act. It was stated by the chairman of the committee that the War Department had been able to operate better in connection with the national defense program through the civil service system.

In connection with the passage of the National Guard Act of Aug. 27, 1940, and the Selective Training and Service Act of Sept. 16, 1940, the Congress prescribed that Government employees inducted into the service under either act, who left positions other than temporary positions, were to be restored to their former positions or to like positions in seniority, status, and pay upon meeting the requirements set forth in these lists. Congress also expressed the view in this act that state and local governmental agencies should take similar action with respect to their employees.

The Hatch Act "Number 2" was thoroughly debated in both the United States Senate and House of Representatives before passage and approval in July. It prohibits "pernicious political activities" on the part of state and local government employees who are engaged in activities financed in whole or in part by Federal funds. This act is in the form of an amendment to the Hatch Act passed the previous year, which had application only to Federal officers and employees. Such state and local officers and employees may not use their official authority to interfere with certain specified elections, and they may not directly or indirectly coerce other officers or employees to make contributions for political purposes. The enforcement of this particular act is specifically placed in the United States Civil Service Commission, and appeals to the United States district courts against removal from office are authorized under the procedure stated in the act.

EXECUTIVE ACTION

By Executive order under authority of the Reorganization Act of 1939, the President created the permanent position of Assistant Secretary of the Treasury in charge of fiscal affairs, at a compensation of $10,000 per annum, the appointment to be made by the Secretary of the Treasury in accordance with the civil service law. This is the first time that such action has been taken by any President. Only one other civil service position in the Federal service carries as high compensation; it is the position of Director of Unemployment Insurance with the Railroad Retirement Board.

Three plans additional to the two approved in 1939, were issued by Executive order of the President providing for government reorganization. Their principal provisions included setting up a permanent fiscal service in the Treasury Department, headed by the Assistant Secretary referred to in the preceding paragraph; transfer of the Federal Alcohol Administration to the Bureau of Internal Revenue, Treasury Department; consolidation of the Bureau of Fisheries and the Bureau of Biological Survey into one agency to be known as the Fish and Wildlife Service; creation of the Surplus Marketing Administration, Department of Agriculture by the consolidation of other agencies in that department; transfer to the Department of the Interior of certain functions of the Soil Conservation Service, Department of Agriculture; transfer of Civil Aeronautics Authority and the Air Safety Board to the Department of Commerce; transfer of the Weather Bureau from Department of Agriculture to Department of Commerce, with the exception of some research functions; transfer to the Federal Security Agency of duties and functions of the Department of the Interior relating to the St. Elizabeth's and Freedman's Hospitals, Howard University, and Columbia Institution for the Deaf; and certain functions of the Department of Agriculture relating to the Food and Drug Administration; and transfer of the Immigration and Naturalization Service from the Department of Labor to the Department of Justice.

Based on action by Congress which was reported in THE AMERICAN YEAR BOOK for 1939, the Social Security Board set up standards for a merit system of personnel administration to be applied by the various states as a condition precedent to the granting of Federal funds by the Board.

GROWTH OF EXECUTIVE CIVIL SERVICE

The national defense program has brought about a marked increase in the number of personnel employed by the Federal Government. The table shows this employment on a two-year basis as of the end of each fiscal year. During October the total number employed reached 1,086,171, the War Department accounting for 33,536 and the Navy Department for 34,180 of the increase since June 30, 1940. There was an increase of 103,995 in the number of positions in the competitive classified service during the fiscal year ended June 1940; and the total number of persons employed in the executive branch in the District of Columbia in that month was 133,823.

	June 30, 1932	June 30, 1934	June 30, 1936	June 30, 1938	June 30, 1940
Competitive classified positions....	467,161	450,592	498,725	562,909	726,827
Unclassified and exempt positions..	116,025	222,503	325,534	289,017	275,993
Total..................	583,196	673,095	825,259	851,926	1,002,820

CIVIL SERVICE IN THE STATES AND HAWAII

General.—A survey conducted by the Civil Service Assembly of the United States and Canada showed that, during the three-year period ended May 1, 1940, the number of cities operating under a merit system had increased from 674 in 1937 to 869 in 1940. Five additional states adopted civil service systems and one state dropped its system, bringing to 18 the total number of states operating on a merit basis. All of the states have merit systems for employees engaged in social security activities, and two states have established a merit system for a special group of employees—Idaho for the State Game and Fish Commission and Pennsylvania for the Liquor Control Board. There are now 1,099 jurisdictions, Federal, state, and local, with at least some employees under civil service. Although Kansas has not yet revived its civil service system for state employees, the voters at the last election approved by nearly two-to-one a constitutional amendment permitting indefinite tenure for classified employees should the state legislature adopt a state merit system.

Alabama.—The legislature established a merit system for the county of Mobile, including the cities of Mobile, Citronelle, and Prichard.

California.—In addition to being tested for hearing and color blindness, candidates for jury service for municipal court misdemeanor trials are being given written examinations and intelligence tests. The voters of Santa Clara County placed county employees under a merit system.

Connecticut.—Meriden voted against the adoption of a civil service system, 2,780 to 2,132, only one-fourth of the electorate voting, however. The Board of Education in Bridgeport voted to apply merit system provisions to teachers and principals of the local schools.

Florida.—A referendum election in West Palm Beach resulted in the adoption of a merit system.

Hawaii.—There are approximately 2,240 territorial employees subject to the merit system in Hawaii, which had completed its first year of existence June 30, 1940.

Louisiana.—Effective July 1, 1942, the state legislature adopted a comprehensive merit system act applicable to state employees and to the largest cities in the state. A State Civil Service Commission of five members and a director of personnel are provided for.

Maryland.—The Attorney General of the state has ruled that the merit system law of the state is "basic" and that all positions, whether or not in existence at the time of the enactment of the law or established thereafter, are automatically under the merit system unless specifically excluded by legislation.

Massachusetts.—Between 400 and 500 employees of state schools, including teachers and others not under the regular civil service system of the state, are being placed under a new merit system, with competitive examinations held by the State Education Commission.

Michigan.—The city merit system of Detroit was extended by the voters to include the Board of Health.

Nebraska.—Omaha voters approved a merit system applicable to city officers and employees, with a few exceptions.

New Jersey.—The following jurisdictions adopted civil service systems: Atlantic City, Atlantic County, Asbury Park, Bloomfield, Margate City, Plainfield, Pompton Lakes, and Ridgewood. Maplewood voted against adoption.

New York.—Beginning with January 1941, 10,000 institutional positions have been added to the state civil service system; and vacancies in key positions in the Mental Hygiene, Correction, and Social Welfare Departments will be filled as a result of competitive examinations held by the state civil service commission. A new state law authorizes the state civil service commission to furnish to cities and other governing bodies of a civil service division of the state, upon request, technical personnel services relating to classification and examining work for such compensation as may be agreed upon. In New York City approximately 27,000 transit employees were brought under the civil service system in the city when the independent subways were unified with the municipal subway system. The legislature passed an act modeled on the provisions of the federal Hatch Act to prevent "pernicious political activities" on the part of recipients of relief funds.

Ohio.—The state supreme court ruled that a provisional employee in the State of Ohio, who has been appointed to a position in the classified service, is entitled to retain his position during good behavior and efficient service until the establishment of an eligible list, or until his arrival at retirement age, the abolition of the position, or until a layoff. A charter amendment was adopted in Lima placing city employees with a few exceptions in the classified civil service.

Utah.—A state law passed in 1937 permits the assignment by an employee of 3 per cent of his wages to a labor union or other organization, and two groups of state employees have requested that their union dues be deducted from their pay checks. The deduction is entirely voluntary and may be discontinued by the individual employees at any time.

Virginia.—The Virginia Advisory Legislative Council, authorized by the General Assembly, proposed to the Governor a state merit system which differs radically from the civil service laws of other state jurisdictions. The proposed bill placed responsibility for over-all supervision of personnel in the Governor, with certain important duties assigned to the heads of departments who were made chief personnel officers for their departments. The bill contained a provision for the delegation of these powers and duties to trained personnel officers where such delegation was necessary. An advisory committee may be appointed by the Governor to aid in the exercise of his functions under the bill. The bill, however, was defeated by the lower house of the General Assembly.

PERIODICAL PUBLICATIONS

Army and Navy Journal
1701 Connecticut Ave. N.W., Washington, D.C.

Civil Service Standard
277 Broadway, New York City.

Congressional Digest
2131 LeRoy Place N.W., Washington, D.C.

Congressional Directory
U.S. Government Printing Office, Washington, D.C.

Congressional Record
U.S. Government Printing Office, Washington, D.C.

United States News
2201 M Street N.W., Washington, D.C.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

ACADEMY OF POLITICAL SCIENCE, Fayerweather Hall, Columbia University, New York City.

AMERICAN ACADEMY OF POLITICAL AND SOCIAL SCIENCE, 3457 Walnut St., Philadelphia, Pa.

AMERICAN BAR ASSN., 1140 N. Dearborn St., Chicago, Ill.

AMERICAN HISTORICAL ASSN., 740 15th St., N.W., Washington, D.C.

AMERICAN POLITICAL SCIENCE ASSN., 305 Harris Hall, Northwestern University, Evanston, Ill.

COMMERCIAL LAW LEAGUE OF AMERICA, 111 W. Monroe St., Chicago, Ill.

HONEST BALLOT ASSN., INC., 27 William St., New York City.

INSTITUTE OF PUBLIC ADMINISTRATION, 261 Broadway, New York City.

NATIONAL ASSN. OF LEGAL AID ORGANIZATIONS, School of Law, Duke University, Durham, N.C.

NATIONAL CIVIL SERVICE REFORM LEAGUE, 521 Fifth Ave., New York City.

TOWN HALL, THE, 123 West 43rd St., New York City.

DIVISION IV
STATE GOVERNMENT

STATE ADMINISTRATION AND LEGISLATION

By Joanne Bolger
Research Division, Council of State Governments

LEGISLATIVE SESSIONS

Only eight state legislatures convened in regular session in 1940. Kentucky, Louisiana, Mississippi, and Virginia held biennial meetings, while annual sessions took place in New Jersey, New York, Rhode Island, and South Carolina. Louisiana and New York lawmakers met in special session as well. Alabama's 1939 regular session, which recessed on Sept. 15 of that year, reconvened on June 25, 1940. In addition to these nine states meeting in regular and "continued regular" session, legislators met in special session in ten more states: Arizona, California, Illinois, Maine, Missouri, Nebraska, New Mexico, Ohio, Pennsylvania, and Vermont.

DEFENSE COOPERATION

No new Commissions on Interstate Cooperation were added to the list of 44 which had been established by the end of 1939. However, the legislatures of the four non-commission states—Arizona, North Dakota, Idaho, and Washington—did not convene during 1940. The states took steps during the past year to assist the Federal Government in the establishment of the Division of State and Local Cooperation of the National Defense Advisory Commission. State defense councils, commissions, or agencies were established in 38 of the states by the end of the year. The Commissions on Interstate Cooperation and the newly organized defense commissions of the various states are working with the National Defense Advisory Commission on matters that require state assistance.

INTERSTATE TRADE BARRIERS

The campaign against interstate trade barriers was effectively continued during 1940. In order to deal with specific problems many regional meetings of state officials were held. One of the most recent agreements to do away with trade barriers, drafted by the three Pacific Coast states, dealt with the interstate movement of poultry. A nation-wide committee of representatives from four regional plant boards has been set up to deal with plant quarantine laws which constitute trade barriers.

At least 20 states effected agreements cancelling laws that hampered the interstate movement of passenger cars, such as discriminatory fees and regulations during 1940. A recent Indiana-Alabama agreement, for example, provides for complete reciprocity on private carriers of the two states, except that trucks can not overstay five days in either state. To deal with the problems of dairy sanitation and inspection standards, which affected interstate trade in dairy products, midwestern and regional meetings laid the groundwork for a uniform future approach.

The courts have been alert to the dangers inherent in blocking the free flow of interstate commerce. Arkansas' tax of six and one-half cents per gallon on gasoline in excess of 20 gallons carried into the state by buses engaged in interstate commerce was held unconstitutional by the United States Supreme Court. This Court also invalidated North Carolina's $250 tax on out-of-state retailers. The Illinois Supreme Court invalidated the law requiring payment of a $25 title investigation fee on new automobiles purchased outside of the state.

TAXATION

Cigarettes.—Although a number of tax laws appear every year, by far the greatest output occurs in the odd-numbered years when most of the states are holding regular legislative sessions. This year Rhode Island amended her tobacco products tax, making the tax applicable to cigarettes only—one mill per cigarette. The tax of ten per cent of selling price on other tobacco products was discontinued. New York's tax of two cents per package of 20 cigarettes is continued until June 30, 1941.

Industrial Plant Exemption.—Rhode Island has always granted certain local exemptions for designated periods for the encouragement of industry. A 1940 law extends this exemption to idle manufacturing plants or mill property.

Income Taxes.—Mississippi increased her personal income tax rates. However, this state allows a credit for taxes paid on income from sources outside the state. This makes the fifteenth state having non-resident credits. The other states are Alabama, California, Delaware, Iowa, Kentucky, Maryland, Massachusetts, New Mexico, North Carolina, South Carolina, Utah, Vermont, Virginia, and West Virginia.

New York continues for another year the so-called emergency tax on income. The 1941 New York emergency tax may be paid in two installments.

Federal employees who were residents of Louisiana, Mississippi, North Dakota, Utah, and Virginia were immune from 1939 state income taxes. These were the only income tax states which did not legally take advantage of the 1939 U.S. Public Salary Tax Act, the reason being that they were not in session at the time of, or subsequent to, the passage of the act. In the past year, however, Mississippi and Virginia provided appropriate legislation. Virginia's law was retroactive, covering 1939 income as well as that of 1940 and the future, while Mississippi's applies to 1940 and thereafter. North Dakota and Utah will have an opportunity to pass appropriate legislation in 1941.

Gift and Other Taxes.—New state taxes adopted in 1940 include a gift tax and timber severance tax in Louisiana, and pari-mutuel betting taxes in New York and New Jersey. Important taxes repealed include the Louisiana sales tax, and the South Carolina tax on income from intangibles. Income taxes were increased in Louisiana and Mississippi and franchise and utility taxes were increased in Mississippi.

Chain store taxes, based on the number of stores in a chain, whether located within the state or not, were adopted in Kentucky and Mississippi. This brings to a total of 21 the number of states with a chain store tax levy. The new Kentucky tax act replaces a statute held unconstitutional early last year by the state supreme court. The act provides for payment of fees ranging from $25 for each store in a chain of five units or fewer, to a maximum of $200 per store in chains of more than 250 units.

PUBLIC WELFARE AND SOCIAL INSURANCE

Indigents and Dependents.—The public welfare was benefited in 1940 by the growth of interstate cooperation as reflected by provisions in New Jersey, Rhode Island, and Virginia concerning interstate agreements relative to indigents and dependents. Virginia passed the Uniform Transfer of Dependents Act which authorizes the Commissioner of Public Welfare to enter into reciprocal agreements with the welfare agencies of other states for interstate transportation and support of certain indigent persons.

Old age security measures were approved in California and Washington and rejected in Colorado and Arkansas. The Washington amendment raises pensions from $30 to $40 per month for persons over 65, and abolishes liens on property of recipients. Colorado voters rejected an amendment to reduce the state's present $45 a month to $40; while Arkansas refused approval of an amendment setting up a new old age assistance system, and reducing the eligible age from 65 to 60. The States of Illinois, Kentucky, Mississippi, Ohio, and Virginia all authorized larger monthly old age assistance grants.

The 1940 trend in residence requirements for public assistance tend downward, counteracting the upward revisions of 1939. Mississippi has lowered her requirement for old age assistance to one year immediately preceding application, and Rhode Island has reduced to one year her old age assistance requirement, as well as her aid to the blind and unemployment relief requirements.

Child Aid.—Kentucky, Mississippi, Ohio, Pennsylvania, Rhode Island, and Virginia have all extended the eligibility age for aid to dependent children from 16 to 18 years for children attending school.

Relief Problems and Policies.—As in 1939, relief administration was a continuing problem, and the states experienced deficiency and emergency financing of relief, borrowing for relief, and changes in the cost-proportion to be borne locally and by the state. Five regional meetings of state legislators and relief administrators were held during 1940 to collect data regarding their various relief problems and policies, and a special relief committee was set up by the Council of State Governments to work with state legislatures and the Federal Government on this problem.

Unemployment Compensation.—Among all the welfare subjects coming up for legislative attention in 1940, unemployment compensation has had an edge as to the number of bills both introduced and passed. Of special interest are the Illinois and Pennsylvania laws that exclude compensation in excess of $3,000 per year. The most important single piece of social security legislation was enacted by Congress—a very substantial liberalization of unemployment compensation for railway workers.

LABOR

Administration of Laws.—Rather than changes in laws, the new state labor legislation in the past year put special and encouraging emphasis upon improving the administration of existing laws. This is particularly true in regard to the administrative changes made in Illinois, Kentucky, New York, and Virginia.

Decreased Legislation.—The annual grist of new labor legislation was less in 1940 than during almost any other year in the last 30 years. The meagerness is accounted for in part by the comparatively few states regularly holding legislative sessions, although there were eight regular sessions, Alabama's concluding session, and 13 special sessions. The special sessions added little except the amendment of unemployment compensation laws in Illinois, Louisiana, Maine, Nebraska, and Pennsylvania. The 1939 workmen's compensation law was finally approved by the people in Arkansas and a new old-age pension law was substituted in Washington.

Workmen's Compensation.—The Alabama legislature, which convened in June to complete unfinished business of the 1939 meeting, enacted an amendment to the workmen's compensation law to extend the coverage from employers of 16 or more to employers of eight or more. Mississippi, the only state without a workmen's compensation law, introduced two bills this year, but both failed of passage. All of the other states, with legislatures in session, introduced bills amending their workmen's compensation laws. The most important law enacted on this subject was in New

York where benefits to persons suffering from silicosis were increased.

Industrial Relations.—The Kentucky legislature enacted the most comprehensive labor legislation of 1940. Although four states—Louisiana, New Jersey, New York, and South Carolina—introduced state wage and hour bills to supplement the Federal legislation, not any of them succeeded in becoming law. Rhode Island passed a law requiring employers who solicit workers during a strike or lockout to advertise the existence of the labor dispute.

Kentucky made a declaration of public policy in regard to industrial relations—affirming the right of employees to organize and to bargain collectively through representatives of their own choosing, to strike and to engage in peaceful picketing, and condemning unfair and violent acts or intimidation by either employers or employees.

Home-Work Laws.—Two states amended industrial home-work laws, New Jersey in regard to record-keeping and wage payment in the hand-knitting industry and New York in regard to labeling home-work materials, and licensing of premises.

Child Labor.—Of importance too, was the only child labor amendment of the year—a unique New Jersey system for the certification of children employed in agriculture outside of school hours. The basic minimum age for gainful employment in this field was placed at 12 years, while the minimum age for other employment was raised from 14 to 16 years. The law also establishes a 40-hour week for minors under 18 and prohibits night work from 6 P.M. to 7 A.M. for minors under 16, and from 10 P.M. to 6 A.M. for those between 16 and 18.

Fair Labor Standards.—Further possibilities of state cooperation in the administration of the Federal Fair Labor Standards Act were provided by new laws in Kentucky and Rhode Island, making a total of nine states and Hawaii now having such enabling acts.

ADMINISTRATIVE REORGANIZATION

Louisiana.—The most important piece of legislation passed in 1940 is the fiscal code regulating all state financial expenditures and designed to produce rigid economies and safeguards against wasteful, extravagant, and corrupt expenditures. Besides giving the Governor broad powers to reorganize the state government and control fiscal policies in the interest of economy and efficiency, the Assembly passed laws aimed at preventing election frauds. This act, in line with current ideas of public administration experts, provides for the reorganization and consolidation of some 170 executive and administrative offices, agencies, boards, and commissions into 20 state departments. The act also provides for the clarification and unification of the Governor's responsibility.

The Louisiana Reorganization Act abolishes the present Department of Public Welfare, the Emergency Relief Administration, and the Drought Relief Committee, and creates a new Department of Public Welfare and a Department of Institutions. Both new departments are headed by administrative directors and non-administrative nine-member boards. The directors are to serve four-year terms and the board members nine-year overlapping terms. The power of appointment of both directors and boards is lodged in the Governor. The responsibilities of the new Department of Institutions include all state administrative functions relating to management and operation of state hospitals and other state institutions except institutions of learning.

Minnesota.—The Commission of Administration and the State Printing Commission were replaced by a Commissioner of Administration, and his powers were increased to approach those of a city manager. He has complete authority over the purchasing process, building contracts, and he provides for the printing and distribution of state publications of all kinds. The State Board of Control was abolished and its duties divided between the Director of Social Welfare and the Director of Institutions.

The Employment Service and Unemployment Compensation Division, formerly under the Industrial Commission, will make a separate and new Employment and Security Division, headed by a director. The director of Welfare has responsibility for all public assistance, child welfare, non-institutional mental hygiene and crippled persons services, and direct relief to war veterans and their families.

CIVIL SERVICE

Civil service amendments were approved in Michigan and Louisiana. The Michigan amendment will set up a bi-partisan four-man state civil service commission with all state employees under the merit system except elective officials, department heads, and certain others. Eighteen states have at least some of their state offices operating under some form of the merit system. Civil service legislation is to be offered in the legislatures of 21 states in 1941.

PUBLIC HEALTH

Public health administration in the United States has until very recently been restricted to provision of the basic preventive services. Within the past few years, however, official health agencies have been concerned with further protection of the public from attacks of preventable disease. During 1940 actual medical care and treatment of disease began to play an increasingly important role.

Another recent trend is toward the establishment of merit systems and similar civil service plans as a method of selecting personnel for state departments of health. The Rhode Island and Tennessee state health departments adopted civil service systems in 1940. This makes a total of 19 states where the personnel, with the exception of the medical staff, must possess civil service qualifications.

Five states—Indiana, Kentucky, Pennsylvania, Tennessee, and Virginia—put premarital examination laws into effect in 1940. This brings to a total of 20 the number of states requiring health tests before marriage.

EDUCATION

By the end of 1940 some kind of minimum standard for teachers' salaries was in effect in 24 of the states. In six others the state-aid funds are apportioned in ways that tend to establish salary standards although definite minimum standards are not fixed. The laws in California and Washington are entirely new, setting state-wide mandatory flat-rate minimum salaries.

URBAN PLANNING

Although the New York Legislature adopted a bill providing for the creation of urban development corporations, Governor Lehman vetoed the bill on the grounds that the real estate interests favored the bill, while the State Commissioner of Housing and the Mayor of the City of New York opposed it.

HIGHWAY AND MOTOR VEHICLES

The volume of legislation affecting highway users which has been considered in recent years has increased steadily. During 1940, Idaho, Nevada, North Dakota, and South Dakota voters approved anti-diversion amendments to their constitutions. Now nearly one-fourth of the states possess such guarantees that motorists' taxes will be used for highway purposes only. The Louisiana electorate approved a constitutional amendment which will permit one-third of the gasoline tax revenue previously diverted to be used for highways. Anti-diversion constitutional amendments were proposed without success in Kentucky, New Jersey, Rhode Island, and Virginia.

LIQUOR REGULATION

Five states—Kentucky, New York, Rhode Island, South Carolina, and Virginia—made changes in 1940 in their liquor license tax. New York is unique in that it is the only state that reduced a license fee; a license for the sale of beer on a vessel used for public hire was reduced from $100 to $25.

Liquor proposals met defeat in three states—Oklahoma, Oregon, and Idaho. The Oklahoma constitutional amendment called for repeal of prohibition in the state, authorization of the importation, manufacture and sale of liquor, and the establishment of a state license system. An initiated proposal in Oregon, had it won, would have repealed the state liquor store system and authorized private sale. One defeated Idaho petition provided for county option on liquor sales. A second initiated petition which was to supplement the state's 1939 Liquor Act was known as the Idaho Sobriety Act. This petition, which was defeated by the voters on Nov. 5, was designed to prevent illegal liquor traffic, promote sobriety, and check the intemperate consumption of alcoholic beverages.

CONCLUSION

Although 1940 was an off-year from the standpoint of state legislation, it was probably the last year in which ordinary legislative subjects were to be considered irrespective of any major national objective. In a way it was a lull before a storm of legislative activity on the defense front. Defense lawmaking will likely be given first consideration in 1941 and even normal legislative problems will be considered from the standpoint of their effect on national defense.

NATIONAL AND INTERSTATE RELATIONS OF STATES

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DEVELOPMENT OF FEDERAL-STATE RELATIONS

The onslaught of the depression was characterized by a wide growth of the functions of the Federal Government in order to meet economic and social problems that extended beyond the lines of state and local governments or were beyond their financial abilities. Besides the expansion of the direct exertion of Federal powers and the eventual extension of those powers by court interpretation, the effort to meet these problems was accompanied by closer Federal-state relationships and a marked growth of cooperation between the two levels of government.

Outstanding in this cooperative pattern were great coordinated projects in the fields of social security, relief, public works, planning and, more recently, through the local governments, housing. In some cases, the method adopted was parallel action by state and Federal governments. In unemployment insurance this was implemented by the impelling force of the tax credit. In other cases the relationship was the more familiar one of the grant-in-aid.

Through this period of the intensification of relationships, the grant-in-aid continued to be the principal sinew of Federal-state cooperation as it had been in the past. This device, while present in unitary states, is of especial utility in the American Federal system in that it enables the National Government to bridge possible constitutional difficulties and traditional barriers and stimulate the state governments to carry out a desirable national policy. Recent years witnessed not only the addition of new grants-in-aid, such as those of the social security program for old age assistance, aid to the blind, aid to dependent children and others, but also the financial expansion and a tendency toward the liberalization of the requirements of the older grants for highways, forests, vocational education, agricultural experiment stations and extension services. The year 1940 was characterized by the continuance of the established Federal-state relationships in their most recent phase of social legislation rather than by further extension of the Federal grant-in-aid system for social purposes. Bills providing for extensive grants-in-aid for general education and for public health were not acted upon at Washington.

NATIONAL DEFENSE

If the dominant theme of the growth of Federal-state relationships during the past decade was social reform and security, that of the past year was national defense. The emergency of a threatening foreign situation, like the domestic emergency, has resulted in an intensification of Federal-state cooperation. The pattern of cooperation in this field, however, is not new. In the first place, the National Guard in the states for a long time has been supported in large part by Federal grants-in-aid, though administered by the states subject to national supervision. In the present situation, these National Guard regiments are being called into national service and replaced by state home guard units. The administration of the present draft followed paths blazed by the experience of the first World War. While the system established by the Federal act is supervised by the Federal Government, important burdens of administration have devolved upon states and localities.

Significantly, one important development in this field was made possible by the growth, since 1935, of the machinery for interstate cooperation, the Council of State Governments. This simplified the problem of coordination of the states and their local governments in the efforts for national defense. Integration of Federal and state efforts was launched when, on the initiative of the Council of State Governments, a Federal-State Conference on the Law Enforcement Problems of National Defense was called during August, 1940. On the state level, this conference included besides the Council its associated organizations—the Governors' Conference, the National Association of Attorneys General, and the eminently successful Interstate Commission on Crime. On the Federal level, the Department of Justice and other Federal departments participated.

The major recommendations of the Conference to the states were: that the governor of each state should appoint a state defense council; that the states promote statewide surveys of industrial facilities and, for the purpose of protection, surveys of their light, water-power, and transportation facilities; and that the states consider reciprocal arrangements for the protection of national defense properties. Besides these measures for interlevel organization and the survey and protection of plant facilities, the Conference also recommended that states review their statutes in the field of civil defense to determine the adequacy of their criminal laws for defense purposes. On the Federal side, the Conference recommended, among other things, that the Federal Government alone should undertake the registration and identification of aliens; that the Federal statute relating to sabotage of war materials under contract be extended to cover the manufacturing premises; that the proposed Federal firearms control statute pending in Congress should be passed and that the Registration of Foreign Agents Act of 1938 should be broadened. Moreover, it was suggested that an interdepartmental committee of Federal information services should be appointed to make available, in one place, defense information for the state governments.

Subsequent to this Conference, the pre-existence of state cooperation machinery in the state Commissions on Interstate Cooperation and their central agency, the Council of State Governments, made it easy to canalize the program by setting up, under the auspices of the Council of State Governments, the Division of State and Local Cooperation in the Advisory Commission to the Council of National Defense. Since that time, approximately 36 state defense councils and about 1,000 local defense councils have been established in accordance with the recommendations of the Conference. Nearly all the states have completed surveys of their idle and available industrial facilities. It is interesting to note that this work was facilitated by previous Federal-state coordination in the field of planning so that, in many cases, both the machinery for making the survey and much of the statistical information was already available. Rapid progress through a coordinated program in the recruitment of available labor and the training of potential labor for national defense industries was likewise made possible by previous Federal-state cooperation in the operation of employment offices and in vocational training. Similar coordination is being achieved in providing for the health, welfare, recreation and housing of defense industry employees. The help of local planning boards has been enlisted for this purpose.

The recommendations for the law enforcement program were followed by the creation of a drafting committee comprised of representatives of both the Federal Government and the states which, with the aid of the National Conference of Commissioners on Uniform State Laws, drafted a set of uniform acts dealing with the subjects of sabotage, regulation of explosives, reciprocal agreements for the protection of state property, and the organization of state guards. These acts will be presented to the Commission on Interstate Cooperation in each state for consideration and enactment in that state. In order to review and perfect Federal-state coordination in this pressing task of national defense, a series of regional meetings covering the entire nation was recently held under the auspices of the Division of State and Local Cooperation. At these meetings, members of the state defense councils discussed further problems of coordination with members of the Advisory Commission on National Defense and Federal officers. In view of this well organized and effectively operating machinery, it can be said that Federal-state cooperation in the field of national defense is making substantial progress. Yet it might well be pointed out that Federal-state cooperation in this field and to some extent in all fields may be somewhat short-circuited eventually by the exercise of the Federal war powers to meet the needs of a growing emergency.

NEW DEVELOPMENTS IN COOPERATION AND COORDINATION

It has already been indicated that it is somewhat difficult to view as entirely separate the growing movement for interstate cooperation and the development of coordination between the Federal and state levels. Increasingly, it would seem, the two are tending to mesh. Mention should be made of two illustrative and significant instances.

During the past year, under the auspices of the Council of State Governments, a compact to create a Potomac Valley Conservancy District and to establish an Interstate Commission on the Potomac River Basin was entered into by the States of Maryland and Virginia and the District of Columbia. The compact makes provision for later participation by West Virginia and Pennsylvania. It would seem that participation by the District of Columbia as a party to this interstate compact may very well mean that the Federal Government is a party to the compact. This would then be the first instance where the Federal Government has directly entered into a compact as a signatory thereto, although such action has often been suggested in other instances.

A second interesting development was also a result of the cooperative movement among the states. The experience of that movement had demonstrated that in order to have effective cooperation among the states it was essential to create machinery especially designed to implement that cooperation. This took the form in each state of an official Commission on Interstate Cooperation, representative of both houses of the legislature and of the executive branch, thus assuring integration within the state government in its negotiations with other governments. The Executive Director of the Council of State Governments, in a hearing before the Temporary National Economic Committee, suggested that the Federal Government channel its now somewhat scattered cooperative activities through a central agency similar to these state instrumentalities. The creation of such an agency would mean that the Federal Government would have a single negotiating instrumentality, representative of both the legislative and executive branches, with which the state governments could deal.

THE MACHINERY OF INTERSTATE COOPERATION

The movement for interstate cooperation continued to gather momentum during the year. In the period following the founding of the Council of State Governments in 1935, attention was necessarily centered on the development of the cooperative machinery as represented in the state cooperation commissions and the *ad hoc* interstate commissions devoted to particular problems. By the beginning of 1941, 44 states had created Commissions on Interstate Cooperation, officially designated to work through the Council of State Governments. This basic unit of the cooperative machinery has received practically nation-wide adoption. In fact, by the beginning of 1939, the machinery had been so widely adopted and so successfully established that it was then possible for the Council to turn its principal energies to the solution of the interstate problems themselves. The widening area of activity, however, is evidence of the continuance of successful progress in the development of the machinery.

In the earlier years, the principal center of activity was the area centering around the Council's New York Regional Office where the state Commissions on Interstate Cooperation had been established at the inception of the movement. In the past two years the newer commissions in other areas have become increasingly active. In some areas, particularly in New England, regional organization has developed. In all areas widening activity is evidenced by a steadily increasing number of interstate conferences and the growing number of topics under consideration. Moreover, the success of the Council of State Governments can more and more be measured in terms of accomplishment as well as in terms of potential usefulness.

INTERSTATE TRADE BARRIERS

One of the most widely publicized of all interstate problems has been that of state trade barriers. Such state barriers were not new in the history of the nation, but the economic depression stimulated a wide growth of such devices motivated, on the one hand, by the desire to reserve the narrowing opportunities for trade and employment for the citizens of the state and, on the other, by the necessity of effectuating the expanding regulatory activities of the states by preventing evasions along state boundary lines. There is no doubt that the mushroom growth of these barriers was not conducive to the free flow of trade within the United States.

It should be stated, however, that the problem is by no means a simple one. There is no simple answer. The extent to which the states can regulate commerce has been one of our most difficult constitutional problems from the beginning of the Union. The principal difficulty has been that of distinguishing whether a state law was a barrier or a necessary police measure. In the present situation, aside from the legal implications, it is not easy to determine whether or not a law, in practice, is a trade barrier.

While attempts at solution of the trade barrier problem have included suggestions to amend the Federal Constitution, to obtain prohibitory congressional legislation, and to widen court action, such actual progress as has been made in mitigating the problem has been the result of interstate cooperation. In 1939, upon the request of several meetings of state officials, the Council of State Governments called a National Conference on Interstate Trade Barriers comprised of members of the state Commissions on Interstate Cooperation and state officials from all over the Union. This conference recommended that the Commissions on Interstate Cooperation should seek to prevent the enactment of new trade barrier laws and to accomplish the repeal of existing ones in their respective states.

Since that conference, the further growth of new state trade barriers has been effectively checked. While the repeal of existing laws is obviously more difficult, progress has also been made in that direction. In some states the Commissions have succeeded in having obvious trade barriers repealed. In other instances, where the measure objected to by one state was deemed necessary by the state which had enacted it, the Commissions of both states have sought to reach a satisfactory adjustment. It seems probable, in view of the inherent difficulties of the trade barrier problem, that this method of dealing with particular laws and regulations as individual interstate problems is the best approach to their solution.

While the part played by the Federal Government in this effort has been largely confined to surveying the situation and bringing abuses to the attention of the public, here again interstate cooperation was implemented by Federal-state cooperation when an Interdepartmental Committee on Interstate Trade Barriers of the Federal Government included a representative of the Council of State Governments in its meetings.

That the drive against trade barriers by the states is continuing in full vigor is evidenced by the recent action of some of the Commissions on Interstate Cooperation of the northeastern states in instituting a thorough examination of those laws in their own states which have been listed as trade barriers by the Marketing Laws Survey of the United States Department of Agriculture. Action of this nature has been recommended to all the states by the Council of State Governments.

BOUNDARY WATERS—RIVER BASINS

Since colonial days, the problems of boundary waters have been one of the most fruitful fields for interstate negotiation and agreement. This is no less true today, although the subjects in which agreement is sought have shifted from boundary line and jurisdictional questions to the control of pollution and the allocation of water. Moreover, rivers are increasingly looked upon not so much as natural lines of division as the core of regions. The development of river regionalism has received spectacular recognition in the Federal Government's Tennessee Valley Authority. The states during the past few years have made less comprehensive but nevertheless parallel efforts to deal with the various facets of the problems of particular interstate watersheds. In these efforts, they have received the cooperation of various agencies of the Federal Government, in particular the National Resources Planning Board.

Notable among the efforts to solve many-sided river basin problems has been the work of the Interstate Commission on the Delaware River Basin, established in 1936 by the Commissions on Interstate Cooperation and representative of those commissions of the four cooperating States of Pennsylvania, New York, New Jersey and Delaware. While the legislature of Pennsylvania has failed to enact the pollution legislation sanctioned by the other three states, the prevention of any additional pollution has been achieved under a working administrative arrangement among the four states. The legislature of Pennsylvania will probably enact the necessary legislation at its 1941 session. Work on the even more difficult problem of the allocation of waters has been nearing a satisfactory conclusion during 1940. Success in these two knotty problems will undoubtedly give impetus to co-state planning in the river basin upon which a beginning has already been made by the Commission.

The method applied in the Ohio and Potomac River Basins differs from that used on the Delaware in that the coordinating machinery in these areas is set up by an interstate compact. Although six of the nine states of the area have ratified an interstate compact for the control of pollution and floods in the Ohio river, consummation has been delayed by the failure of Pennsylvania to ratify. Again, such ratification is probable during the 1941 legislative session in that state.

As was the case in connection with the Delaware and Ohio Rivers, the most recent example of interstate cooperation in a unified attack upon the problem of a river basin, that of the Potomac, was initiated under the sponsorship of the Council of State Governments. The previously noted Interstate Commission on the Potomac River Basin was established by a compact ratified by Congress on July 11, 1940.

The oldest and probably to date the most successful example of an interstate commission established to deal with water problems is the Interstate Sanitation Commission created by compact of the States of New York and New Jersey to abate the serious pollution in New York Harbor and adjacent waters. Progress in abatement has been marked and will be given added impetus by legislation sponsored during 1940 by the New York and New Jersey Commissions on Interstate Cooperation designed to enable financially burdened cities in New Jersey to finance sewage disposal works by means of revenue bonds. This legislation is now awaiting enactment by the legislature of New Jersey.

FISHERIES

Interstate disputes and agreements on fisheries and fishery rights have been prominent since colonial times. Today the depletion of many of our important national fisheries, especially those of the Great Lakes and the Atlantic littoral, has created a need for interstate action, particularly since the possibilities of direct Federal action are clouded by constitutional complications.

The states bordering the Great Lakes, because of the difficulty of interstate action in this region, particularly in view of the necessity of including the Dominion of Canada, secured the aid of the Federal Government in negotiating for the solution of a very serious depletion problem. It is interesting to note that the states were initiating the negotiation of a treaty with a foreign power. An important step was taken when an International Board of Inquiry was established as suggested by the states on Feb. 28, 1940 by an exchange of notes between the United States and Canada. Significantly, one of the two United States Commissioners appointed by the President was a representative of the Council of State Governments.

For the past few years, the 14 states of the Atlantic Coast have been meeting in conferences to discuss the establishment of machinery to coordinate their efforts for the preservation of the seriously depleted Atlantic Coast fisheries. Agreement has now been reached on the form of a compact which will establish the Marine Fisheries Commission, comprised of three representatives from each state —the conservation administrator, a legislator appointed by the Commission on Interstate Cooperation, and a person with an interest in and knowledge of the fisheries, to be appointed by the governor. This body will recommend measures for the preservation of the fisheries to the governments of the cooperating states. Its importance is that it will provide an official interstate coordinating body and an official channel for recommendations to the several states. It is significant that the primary research agency for the proposed Commission is the Fish and Wildlife Service of the United States Department of the Interior.

There are other instances of interstate cooperation in this field in 1940. New York enacted an initial series of measures agreed upon by the Commissions on Interstate Cooperation of New York and Vermont for the conservation of the Lake Champlain fisheries. Vermont will consider these measures in its 1941 session. Indications are that agreement is finally reached in the long continued negotiations between New York and New Jersey in regard to joint measures for the preservation of the revived shad fishery of the Hudson. There is pending an amendment of the compact of 1905 between New Jersey and Delaware in regard to the fisheries of Delaware Bay and, more recently, attempts have been made to reach an agreement between these two states on the menhaden fisheries. Similar efforts have been initiated by Virginia and Maryland to reach agreement on the regulation of the historically disputed Chesapeake Bay fisheries.

UNIFORM STATE LAWS

A very important development in the movement for interstate cooperation during 1940 was the association of the National Conference of Commissioners on Uniform State Laws with the Council of State Governments. The Conference, since it was founded in 1891, has had long experience and been very effective in the drafting of uniform laws. It has been much less successful in securing the enactment of its model measures by the states. This was probably due to the lack of an organic relationship of the commissioners to the governments of the states. The Commissions on Interstate Cooperation of the Council of State Governments, however, are both official agencies of the states and comprised of state officials representative of both the legislative and executive branches of the state governments. They provide the necessary organic relationship and past experience has shown their success in getting measures enacted. Their coordination with the Commissioners on Uniform State Laws will supply the necessary channel for bringing the recommendations of the Uniform Law Commissioners to the attention of the states. Accordingly, the Commissioners on Uniform State Laws have prepared a list of the measures whose immediate enactment they consider to be most desirable. These bills are being presented in each state to the Commission on Interstate Cooperation for consideration and presentation to the legislature in the 1941 session.

ECONOMIC FIELDS

It has often been said that interstate cooperation is of limited usefulness in fields where it is plagued by economic competition among the states. Yet, as the New York Joint Legislative Committee on Interstate Cooperation points out in its 1939 report, the usual example given, the interstate labor compact movement, was really influenced by the variegated decisions of the Supreme Court. Similarly, the Interstate Oil Compact Commission has often been cited as an example of the baneful effect of interstate competition on interstate cooperation. Yet despite a chorus of criticism during 1940, the Oil Compact Commission continued to supply the only coordinating machinery in that field.

Another problem complicated by competition has been that of milk supply. While joint Federal-state action has made price control possible in the New York City market area, market control of this type may accentuate some very serious problems in the field. The exclusion of dairy products of the midwestern states from eastern cities, ostensibly by sanitary and inspection requirements, has provoked much comment. The Commissions on Interstate Cooperation of the midwestern region are at work on the problem of raising and unifying the milk sanitary standards of their states. During 1940, the eastern states similarly began consideration of these problems. It is contemplated that eventually the two groups will meet to work out some equitable solution.

TAXATION

While no progress was made during the year despite continued agitation towards joint Federal-state action to relieve interlevel tax competition, there were signs of potential progress on the state level. A regional interstate committee in the northeastern states is working on a model act providing for the compromising or, failing that, the arbitration of double domicile disputes. A revival of reciprocal statutes in relation to the taxation of intangibles in decedents' estates was also in the offing as part of a potential program of interstate adjustments being considered by the committee. Following negotiations between the cooperation commissions of the two states, a dispute between New York and Pennsylvania with respect to the registration of motor buses will undoubtedly be settled.

PROGRESS

It would be impossible within the space of this article to detail the progress in all the fields in which projects of interstate or Federal-state cooperation have been or are being launched. Pre-marital examinations, banking laws, securities regulation and a host of other topics might be listed. Mention should be made, however, of the Council of State Governments' various regional conferences during 1940 on the Federal-state and interstate aspects of relief. A special committee of the Council is preparing a report on this topic.

Sufficient instances have been listed to indicate an undoubtedly rising tempo of interstate cooperation and a widening range of successful accomplishments. Despite the short time the Council of State Governments has been in existence, it is the most effective machinery yet devised for implementing interstate cooperation and making good its motto, "a more perfect Union."

STATE CONSTITUTIONS, REFERENDA, AND INITIATIVES

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GENERAL

One hundred and eighty-nine separate questions were submitted to state-wide popular vote in 33 states during 1940. One hundred and forty-nine constitutional amendments were on the ballots, 125 originated by legislatures, and 24 proposed by initiative petition. In addition, there were 22 statutes popularly initiated and 17 referenda on statutes. As required decennially by the constitution, the question of calling a constitutional convention was submitted in Iowa, the proposal being rejected in an election in which attention was centered upon national and state candidates. Besides the proposals mentioned above, each city and town in Maine and Massachusetts voted upon questions of local option in liquor regulations, in accordance with statutory requirements. Four such questions were submitted in Maine and three in Massachusetts.

Ninety-one, (48%) of the total number of proposals were approved by the voters. Constitutional amendments proposed by legislatures were most successful, 68 (54%) being adopted. Eight (33%) of the amendments initiated by petition were approved, but only five (23%) of the initiated statutes. Six of the 13 acts referred by petition were sustained, while all of the four statutory proposals referred by legislatures were adopted.

Eight state bond issues were voted on, five being approved. Louisiana voters authorized three issues, two of them being refunding bonds, while Alabama also approved a refunding issue. An issue for building an insane hospital was approved in Montana. Refunding issues were refused by the voters in Alabama and Arkansas, and also an issue to finance an extensive building program at Montana State College.

All proposals submitted were accepted in Illinois, Indiana (3), Kansas, Mississippi and Utah, while all proposals were rejected in Colorado (5), Oregon (9), West Virginia (3), Minnesota, New Mexico (2), Oklahoma (6), and Tennessee (2). With the exception of a proposal to repeal the constitutional liquor provision in Oklahoma, the questions on the ballot in the four states last mentioned failed of adoption because extraordinary majorities were required, although in each case the majority of the votes cast on the question was favorable.

Most of the questions submitted to popular vote during the year appeared on the ballots for the November election, thus seriously complicating the task of the electors in a number of states. Louisiana voters found 28 amendments proposed by the legislature on their November ballots, two being in effect resubmissions of proposals defeated at the general election of April 20 when four questions were considered. In California, the November ballots carried 17 proposals, 16 being amendments originated by the legislature. The Arkansas ballot included 11 questions, seven of them constitutional amendments. Voters of Arizona decided ten questions including six proposed amendments, while those of Maryland and Oregon passed on nine questions each, with seven and five amendments, respectively. North Dakota, however, presented ten questions at the primary election on June 25, only three being submitted in November. Maine, as usual, used the state election on Sept. 9 for state-wide referendum votes on two local acts as well as the local option questions previously mentioned. No special elections were held on state-wide questions.

EXECUTIVE STRUCTURE AND POWERS

Louisiana.—The most extensive proposal relating to the structure of the executive branch of state government was that contained in an amendment adopted in Louisiana. About 170 agencies of state administration will be consolidated into 20 departments, most of them headed by appointees of the governor, and four independent establishments which include the attorney-general, the state auditor (who becomes a post-auditor), the board of supervisors of Louisiana State University (reorganized in a separate amendment), and the civil service commission. An integrated department of finance was created to include central financial control functions, budget planning, and central purchasing. The proposal resulted from campaign promises of Governor Jones and a survey of state administration conducted under the auspices of the state university. Another proposal was defeated in Louisiana whereby elected state officials would have been eligible for retirement upon two-thirds salary after 24 years of continuous state service and attaining the age of 70.

West Virginia.—Two amendments rejected were designed to reduce to three the number of elected state officials, *i.e.*, the governor, attorney-general, and auditor, and to provide for an executive budget system to replace that now in charge of the board of public works. The commissioner of agriculture, secretary of state, superintendent of schools, and treasurer would have been eliminated from the list of elective officers.

North Dakota voters disapproved an initiative act to reorganize and consolidate state financial administration under an appointive bi-partisan board of three full-time members, replacing six existing boards. In the same state, however, an amendment was adopted to institute "staggered" terms of six years for the three-member, elective public service commission.

Merit system constitutional amendments relating to the state civil service were approved in three states. An initiative proposal was adopted in Michigan to include in the constitution a bi-partisan civil service commission of four members appointed by the governor for eight-year overlapping terms, and a personnel director appointed after open competitive examination. The amendment also guarantees an appropriation of one per cent of the annual state payroll for the operation of the system. An amendment in Louisiana validated acts of the 1940 legislature which established merit systems for the state service and for the city of New Orleans. An amendment approved in Kansas authorized the establishment of the merit system for state and local employees and removed the four-year term limit for appointive officers in merit systems. In addition to the three amendments affecting state service, a Texas amendment exempted municipal civil service from the operation of the constitutional two-year term limitation.

Other Proposed Changes.—Less striking were a number of other proposed changes. An amendment to reorganize the fish and game commission was adopted in California, but similar proposals suffered defeat in Arkansas, Colorado, Maryland, and Missouri. California prison administration was reorganized by amendment. Florida authorized the creation of a parole commission. Revision of the Maryland workman's compensation act was approved on referendum, while a proposed revision was rejected in Arkansas. South Dakota refused to sanction the substitution of a commissioner for the unemployment compensation commission. Tennessee failed to adopt an amendment to provide a four-year term for governor, while Maryland defeated a limitation by which the governor could not succeed himself. Oregon defeated an amendment to remove the two-term limit on tenure in the offices of secretary of state and treasurer. An amendment by which women would have been eligible to state elective offices failed to receive the necessary majority for approval in Oklahoma. California voters rejected the "little Logan-Walter bill," an amendment providing for review of the acts of administrative agencies in the general trial courts.

LEGISLATURES

As the result of three amendments, South Carolina changed from annual to biennial sessions of legislature. A proposal to abandon the "split session" was defeated in California. The plan would have instituted annual sessions, beginning in March and limited to 60 days, those in alternate years being restricted to financial matters except for specific recommendations of the governor. While no formal salary increase was involved, there was a provision for $8 per day per member for "expenses." Legislative salary increases also were rejected in Louisiana, Maryland, Missouri, Oregon, and Tennessee.

California adopted an amendment permitting legislative committees to continue their activities between sessions, which was proposed in order to overcome an adverse court decision. Missouri voters rejected a proposal to broaden the scope of the decennial sessions for revising the permanent law. A proposal to permit the governor to fill legislative vacancies by appointment was defeated in South Dakota. Extensions of authority relating to public lands and trust funds derived from them were granted in Mississippi, Idaho, and Arizona.

COURTS

Of the seven propositions on the ballot in Missouri, the only one approved was the "non-partisan court plan," an amendment proposed by initiative. Judges of the supreme court, courts of appeals, and circuit and probate courts in St. Louis and Jackson county (Kansas City), and, after local popular vote, in other circuits, will be appointed by the governor from three nominations made by appellate and circuit non-partisan "judicial commissions." At the end of his term of office, any judge may elect to seek approval for a new term on a non-partisan ballot, defeated judges to be replaced by new appointees.

Florida voters accepted an amendment providing for an additional justice of the supreme court and authorizing that court to sit in divisions. "Peoples Courts" were authorized in Maryland and required in Baltimore by a new section added to the constitution. Direct appeals to the supreme court in certain questions of constitutionality were authorized in Texas. Minor changes were made in Arkansas, Louisiana, and Maryland.

A proposal to replace the justice of the peace with summary courts of county-wide jurisdiction, and to permit the creation of probate courts separate from "county courts," was defeated in West Virginia. Reorganization of the appellate court system was rejected in California.

ELECTIONS AND POPULAR CONTROL

An amendment adopted in Louisiana abolished the poll tax and poll registration as prerequisites to voting; thus Governor Jones was able to carry out a campaign promise. The use of voting machines was authorized in the same state, thereby validating an act of the 1940 legislature by which the use of the machines was required in New Orleans and permitted in other parishes. By amendment, a California act naming the secretary of state to receive returns on the election of governor and lieutenant governor was validated. Omissions and inconsistencies in election provisions were corrected by amendment in Nevada and South Carolina.

Propositions defeated included the repeal of the double primary provision in Arkansas, the shift of state primaries from May to September in Oregon, authorization of absentee voting in New Mexico, changes of requirements for initiative and referendum in Missouri and North Dakota, a change in recall requirements in North Dakota, and an amendment to repeal constitutional limitations and permit the use of the initiative to fix salaries of state officials in Washington. In the latter case, legislative salaries would have been limited to a maximum of $50 per month.

LOCAL GOVERNMENT

North Dakota voters approved an amendment whereby optional forms of county government, at least one to provide for a manager, may be enacted by the legislature. Fifty-five per cent of those voting on the question is required for adoption in any county. A similar majority is required on proposals to disorganize or consolidate counties. Nevada now will require approval of the abolishment of counties by a majority of those voting at the election. A Nebraska amendment to authorize the enactment of laws providing for optional forms of county government was defeated.

Noteworthy among other proposals adopted were an amendment to assure exemption from taxation of the property of irrigation and other local districts in Arizona, the prohibition of local gasoline taxes in Louisiana, and the reorganization of the New Orleans dock board. The latter was a political proposal designed to help eradicate the remnants of the Long regime.

Proposals defeated, among others, included a four-year term for county commissioners in Florida, repeal of the two-term limit for county officers in Washington, and an amendment increasing salaries for county officers in Wyoming. Also defeated were a proposal to subject the operations of municipally-owned utilities outside of their corporate boundaries to state control in Arizona, and a referendum on an act to bring municipally-operated bus lines under state control in Michigan.

TAXATION

Proposals directly relating to taxation appeared on the ballots in 18 states during 1940. Florida voted to amend the constitution to abolish the state *ad valorem* levy. Washington voted a 40-mill over-all limit on property taxes and limited the state levy for university purposes to two mills. Montana, however, authorized a 3½-mill state levy on the property tax for university purposes. Louisiana, in the second submission of the question, pledged the residues of the severance tax fund first to furnish free school textbooks and supplies and then to the state school fund, and, at the same time, limited the amount of severance tax funds returned to any one parish. North Dakota earmarked sales tax receipts for schools and relief. Arizona adopted a specific tax upon automobiles in place of the *ad valorem* levy, while Louisiana redeemed a campaign promise of the governor by reducing licenses for pleasure cars to $3 and levying an additional cent of gasoline tax for highway purposes. Gasoline tax receipts and other automobile taxes were pledged to highway purposes in Idaho, Nevada, North Dakota, and South Dakota, in some cases with an averment that the purpose was to assure continued aid from the United States. Maryland amended the constitution to subject the salaries of public officials to the state income tax.

Tax exemption proposals were numerous, especially in Louisiana, but were defeated except for an extension of the Florida provision granting a $500 exemption of personal property to widows and disabled persons. Exemption proposals defeated included homesteads up to $5,000 in Arizona and North Dakota, personal property in Arkansas, fishing vessels in California, and waste materials, certain industries, R.E.A. projects, bank stock, lodge property, and certain gasoline tax exemptions in Louisiana.

Arizona defeated an initiated amendment sponsored by the Farm Bureau Federation which would have limited the levies and directed the use of almost all of the types of taxes in use in that state. Graduated land tax proposals were rejected in Oklahoma and North Dakota. The latter state also defeated a proposal for the classification of property for taxation and a provision for abatement of taxes. Income tax proposals were defeated in Colorado and Louisiana. Two separate initiated amendments to impose increased gasoline taxes and set up highway building programs were disapproved in Missouri, while Arizona rejected an initiated statute designed to increase the distribution of gasoline tax and other highway revenue to cities, and Oklahoma defeated a similar proposal for increased distributions to local government units. Alabama refused to amend the constitution to permit levies beyond constitutional limitations in cities, and Michigan rejected a proposal to allow school districts to exceed the 15-mill constitutional limit for building purposes after popular vote.

OLD AGE PENSIONS

An initiated statute was adopted in Washington guaranteeing minimum payments of $40 per month to persons over 65. California adopted two amendments to invalidate present liens and prohibit future encumbrances by the state on the property of old age pension recipients. Colorado rejected an amendment to reduce the amount of pensions guaranteed to $30. The so-called "Rotenberry Plan" was defeated in Arizona. The graduated land tax defeated in Oklahoma was for old age pension purposes.

RACING AND GAMBLING

Activity looking toward relaxation of laws prohibiting gambling continued though it was somewhat obscured by other measures. Measures to legalize gambling with revenues accruing to the state were defeated in Arizona, Colorado, and Oregon. The Colorado proposal included racing alone and would have vested control in a board composed of persons named in the act. Florida authorized the division of racing revenues with local governments.

LIQUOR REGULATIONS

Oklahoma overwhelmingly defeated a proposed repeal of the constitutional prohibition. Changes in the regulations pertaining to alcoholic beverages were rejected in Idaho and Oregon. Oregon also rejected a proposal to abolish the state liquor dispensary system, and Idaho defeated an initiated statute permitting county option.

BANKING

In order to put state banks on a basis similar to national banks, double liability laws were repealed and in some cases other regulations relaxed in Illinois, Indiana, Utah, and Washington. The amendment for that purpose was defeated along with the other proposals in Oregon.

MISCELLANEOUS

State aid for education was adopted as an equalization measure in Arizona, funds to be supplied by a state levy on the property tax. North Dakota adopted a change in the amounts to be appropriated for school aid in the several categories without increasing the total amount. An act to regulate dental practice was approved in Michigan, while a dental advertising measure was rejected in Arizona, and also an amendment to the medical practice act of Oklahoma. Repeal of the Oregon milk control law was defeated, and also the initiated act to adopt "day-light saving" time during the summer in California.

ELECTORAL LEGISLATION

By O. Douglas Weeks

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GENERAL

During 1940 the legislatures of 12 states amended their election statutes, and constitutional or legislative referenda affecting elections were submitted in 14 states to be defeated in all but four.

NOMINATIONS AND PARTY ORGANIZATION

California denied participation in primary elections to parties: (1) using "communist" in their names; (2) affiliated with the Communist party, the 3d International, or any other foreign agency, political party, organization, or government; or (3) standing for sabotage, force, violence, sedition, or treason.

Louisiana set a limit of $100 on assessments levied on primary candidates in addition to the regular assessments fixed to defray primary expenses, created separate election commissioners to conduct run-off primaries for governor or mayor, curtailed police supervision of primaries, and admitted watchers to all parts of primary polling places.

Kentucky provided that anyone who files as a candidate for nomination not in good faith, that is as a "dummy" candidate, in order to influence or control the choice of challengers, inspectors, or officers of election shall be guilty of a misdemeanor.

Vermont changed her provisions applicable to special primaries and elections to fill vacant seats in Congress.

The right of any voter in Rhode Island to participate in a primary caucus may now be challenged by caucus officials, party committeemen, or watchers for any slate; if challenged, the voter must make affidavit as to his voting qualifications, party membership, and intention to vote in the forthcoming election for the candidates nominated at the caucus. The caucus law was otherwise amended in several particulars.

Representation in the state central committees of Louisiana is now apportioned among the parishes (wards in New Orleans) on the basis used for the lower house of the Legislature; memberships-at-large are to be discontinued as the terms of the present incumbents expire.

All delegates and alternates from New York to a national party convention must be "enrolled members of such party." Members of town or ward party committees in Rhode Island are now *ex officio* members of committees in representative districts in which they reside; such district committees were formerly specially elected.

CONDUCT OF ELECTIONS

Bi-partisan election boards and the powers of police juries to make certain election arrangements were restored in Louisiana; in parishes where there are no independent candidates and only one party nominee for each of the local offices, the governor is authorized to dispense with a general election except for state and national purposes.

Applicants for places on district election boards in New Jersey must have voted for three consecutive years in the same political party, and their applications must attest to their moral character, party affiliation, good eyesight, health, ability to read and write English readily and to add and subtract, and possession of a reasonable knowledge of the duties of an election official.

Election officials in New York are no longer exempt from jury duty for a year after an election; small election districts may be united with contiguous districts for polling purposes; and boards of education may divide "union free school" districts into as many election districts as they see fit. Where all the expenses of a New York board of elections shall be a charge on a particular city and when such city has a central purchasing agency, election supplies must be procured through such agency.

Ohio provided for a separate party column ballot paper for the names of candidates for President and Vice-President, the names of electors being omitted. The Governor, Attorney-General, and Secretary of State of Kentucky were made responsible for the publication of proposed constitutional amendments. Voting machines, the use of which was formerly optional with all cities and counties in New Jersey, were required after Sept. 1, 1940, for all counties of the first class (Essex and Hudson counties, the latter including Jersey City) for all elections and in all election districts, the machines to be purchased by the State House Commission and at a rate not exceeding $300,000 a year.

Rhode Island tightened her law protecting the use of voting machines, providing for rigid bi-partisan inspection before use and when repairs are needed during an election, created an election inspector for each poll to be commissioned and assigned by the Board of Elections to watch elections and to report irregularities, and strengthened provisions for bi-partisan checking of voters and inspection of election procedure.

Election inspectors in New York, in addition to making the regular returns, are now required to report to the board of elections within 24 hours after the close of the polls the total number of persons voting and the number of votes cast for national and state officials and state legislators, and within 10 days such board shall forward to the Secretary of State the total count for each candidate, within the county.

Returns in Rhode Island must now be tabulated within six days after an election, and petitions for opening voting machines by contesting candidates must be presented within 12 days.

New York county boards of canvassers have been authorized to compel district recounts of absentee ballots.

Kentucky amended her requirements in regard to the issuance of certificates of nomination and election. South Carolina provided for recall elections for the intendant and wardens of towns of less than 1,000 population with some exceptions.

CORRUPT PRACTICES

Mississippi forbade (with exceptions as to contractors and emergencies) the State Highway Commission or any county board of supervisors to employ from May to August, inclusive, of any primary election year, more than the average number of highway workers employed during the same period in the preceding three years or to fix a higher rate of pay. New Jersey created criminal judicial districts in counties of the first class with judges appointed by the legislature and with jurisdiction over election law violations.

New York enacted new restrictions against intimidation of voters and to protect voters receiving or entitled to receive relief or work relief provided by Congress or the state legislature from solicitation and promises of benefits or threats of the loss thereof in connection with any political campaign, the furnishing or receiving of lists of such persons for political purposes being also forbidden.

No person in Rhode Island may hereafter serve as a registration, caucus, or election official or seek a caucus nomination who has been guilty of a crime involving moral turpitude or which constitutes a violation of the caucus or election laws of any state; Federal, state, and local government employees (except town moderators and clerks), and candidates are also barred. In Virginia it is now unlawful for anyone to pay, or to offer to pay, state poll taxes for any others except household members and close relatives.

REGISTRATION

Permanent registration is now required in New Jersey in all municipalities in counties of the first class and in all counties of the second class using voting machines; in the former counties secretaries of county boards have been displaced as registration officials by commissioners of registration, and more stringent regulations have been adopted designed to keep the registration lists purged, requiring re-registration for persons whose names are in the inactive file, reports of moving permits, house-to-house canvasses, access of candidates to registration lists, etc.

Rhode Island substituted biennial for annual registration and required the printing of voters' lists within three days after revision; the Board of Elections may now correct lists prepared by boards of canvassers and registration; and more severe penalties are fixed for violations of the registration law. Slight changes were made in the registration laws of Kentucky, New York, and Virginia.

ELECTORAL REFERENDA

A constitutional amendment in California allows statutory regulation of the manner of making returns of the election of Governor and Lieutenant Governor; an act approved by the voters requires such returns to be made to the Secretary of State. In Louisiana amendments altering voting requirements and methods of voting and permitting the use of voting machines were approved. A nonpartisan system for the nomination, appointment, and election of certain judges was placed in the constitution of Missouri. Amendments providing for uniform canvassing of elections and an earlier return of national elections and forbidding the legislature to abolish any county without the approval of a majority of the electors voting in such county on the question were ratified in Nevada.

Proposed constitutional amendments applying to elections were defeated in nine states: Arkansas—eliminating run-off primaries; Maryland—denying the Governor consecutive terms; Nebraska—authorizing an optional plan of county government embodying the short ballot; New Mexico—altering voting requirements; Oklahoma—increasing age and residence requirements for state-wide elective officers; South Dakota—filling legislative vacancies by the Governor; Tennessee—increasing the Governor's term to four years; Washington—allowing more than two consecutive terms for county officials; and West Virginia—providing for a state short ballot. An Oregon referendum measure moving the primary election from May to September and eliminating the presidential primary was defeated.

LAW REFORM

By Clinton Rogers Woodruff
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THE LAW INSTITUTE

Following its successful Law Institute of 1939, when more than 175 lawyers from all parts of the United States gathered to spend three days in earnest study of certain recent developments in the law, the University of Michigan Law School decided to make the Institute an annual event. The work of the 1940 Institute also covered three days. It was planned to discuss developments in three quite widely separated fields of law. The year's topics were Restitution, Procedure, and recent Federal legislation of importance to the practitioner. The faculty was composed of both Law School professors and practicing lawyers. The subject of Restitution, which is having the most rapid growth of all branches of equity jurisprudence, was reviewed, as well as "Discovery Before Trial", "Some Problems in the Introduction of Documentary Evidence" and "Discovery of Assets after Judgment".

REMOVAL OF FEDERAL JUDGES

The action in the Federal House of Representatives on the bill to remove Federal judges, below Supreme Court rank for "behavior" . . . other than good behavior within the meaning of that term used in Section 1 of Article 111, of the Constitution not only was of high importance, but was intensely discussed on the floor of the House. The basic bill on the subject was H.R. 5939, which came from the Judiciary Committee May 3, 1939, with House Report No. 537. Toward the close of the debate, H.R. 9160, introduced by Representative Sumners, March 29, 1940, was in effect substituted for the earlier bill, the later one applying also to Circuit judges whereas the earlier one had included only judges of the District Courts. The provision was, that upon resolution of the House of Representatives directed to the Chief Justice of the United States stating that in the opinion of the House there is reasonable ground for believing that the behavior of a judge had been other than good behavior, the Chief Justice shall convene or cause to be convened a court of three Circuit judges to try in special term the issue of good behavior and the right of such judge to remain in office. A right to challenge any member of the proposed court for cause would be extended to the accused judge, subject to approval of the Chief Justice.

STATE BAR ADMISSION STANDARDS

The outstanding change of the year in State Bar admission standards was that of Kentucky. The State Court of Appeals revised its admission rules so as to require two years of academic work before a candidate may begin the study of law.

NATIONALITY LAWS

A bill for the revision and codification of the Nationality Laws of the United States was signed by the President Oct. 14, 1940 and is now in effect. This bill changes radically the law of this country with respect to nationality, nationalization and immigration. More than two years ago the Section of International and Comparative Law of the American Bar Association appointed a special committee to participate in this task, the committee played no small part in drafting this code. They worked hard and laboriously during the whole period with Congressional committees, leaders of the Bar, representatives of civic organizations, and a number of members of various branches of the government in helping to complete this colossal task. Many of their suggestions were accepted and finally incorporated in the bill as enacted.

AMERICAN LAWYERS AND LATIN AMERICA

President Lashly of the American Bar Association calls attention to the growing demand for lawyers familiar with Central and South American affairs. Familiarity with the Spanish language is particularly desirable. He reports that a recent survey made by the Judge Advocate General for purposes of the Army shows that, of 170,000 lawyers in the United States, only 42 are familiar with Spanish. It was suggested that lawyers in this country, particularly the younger lawyers seeking greater opportunities, might well find it to their advantage to familiarise themselves with the language and the law of South American countries.

INTER-AMERICAN BAR ASSOCIATION

An Inter-American Bar Association was organized May 14, 1940 by lawyers from many countries of the Americas who were present in Washington, D.C. as delegates to the Eighth American Scientific Congress, participating in its Section IX on "International Law, Public Law, and Jurisprudence". A representative of the Canadian Bar Association was present and expressed approval but was not authorized to speak formally on behalf of his Association. The Inter-American Bar Association is a new departure in this hemisphere among associations of lawyers. Its primary object is to develop friendly contacts among the lawyers of the different countries the whole length of the North and South American continents. In this respect its purpose is in harmony with the "good neighbor" policy of the National Administration. It is an interesting fact that, as was noted in 1934, in the report of the American Bar Association's "Special Committee on International Bar Relations" at the Milwaukee meeting of the Association, the legal profession was the only profession—almost the only occupation—that thus far has developed no form of affiliation between all the national organizations in its own field.

Inter-American codification is a question which deserves continuing attention, although the Commission of Jurists at Rio de Janeiro in 1925 and 1927, and the Pan American Congresses have done important work in this field. Particularly in commercial law and procedure, in copyright and trademark law, and in social legislation there are still many problems that await solution. Continuation of the efforts for unification of law in the United States would undoubtedly accelerate this trend which is already stimulated by the constantly expanding realm of activity of the Federal Government.

CENTER FOR LEGAL STUDIES PROPOSED

A Center for Legal Studies devoted primarily to making available every substantial publication relating to the law of Latin America and the mother countries has been proposed. This would include the cataloguing of periodical literature, monographs, and fugitive pamphlets which throw light on the law and its history. Such material would be available not only to the United States Government in all its branches, but also by inter-library loan or by microfilm to the American lawyers no matter how far they may be from Washington. As a gesture of cooperation, it is expected to extend the service to the Latin-American lawyers and students. The program of the center also would provide for original research, both legal and bibliographical, and the publication of guides, lists, and monographs of current interest to the United States Government and to North American legal scholarship. Specialists on Latin-American law on the staff of the Law Library could be of great service in the preparation of special studies, and in collaboration with the Hispanic Foundation of the Library of Congress, the American Institute of Law, the Pan American Union, the Division of Cultural Relations of the State Department, the various government agencies, universities and colleges in the United States as well as in Latin America, bar associations, etc.

EXHIBIT OF ENGLISH COMMON LAW SOURCES

During the meeting of the American Bar Association in Philadelphia there was displayed at the Free Library of Philadelphia, selections from the Carson Collection of the Sources of the English Common Law. This is one of the really great collections of Blackstoniana (and earlier English legal documents) to be found anywhere in the world. At the Philadelphia meeting in 1924 this collection was on display at the Historical Society of Pennsylvania, and attracted much attention.

The Print Room on the second floor of the Library contained about its walls, engraved portraits of Chancellors and Chief Justices of England, accompanied by letters and manuscripts signed by many of them. In the cases in the room were printed treatises and pamphlets on the law written by these men. The period covered was from the reign of Henry IV (1399) to that of George II (1740). In the lobby upon the ground floor was shown manuscripts and books from the time of Magna Carta to the middle of the 18th Century.

This display as a unit illustrated what a lawyer in the American Colonies of 1740 might have seen, read or heard of in his study and practice of the law under English forms. The date 1740 is selected because it is the year in which the University of Pennsylvania was founded, and because the University, in consequence, is now celebrating its 200th anniversary.

As a special feature of interest to the Bar Association, there was an exhibition of Blackstoniana. This comprehended engraved portraits, letters, manuscript notes for the second book of the *Commentaries,* Blackstone's original Patent of Precedence and his Commission to the King's Bench, the first English and succeeding editions of the *Commentaries,* together with other pertinent items.

COUNTY AND RURAL GOVERNMENT

By Orren C. Hormell

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GENERAL

The year 1940 provided a few outstanding incidents in the ever increasing attack of civic organizations, forward looking citizens' newspapers, political scientists, and public administrators on the entrenched strongholds of county politics and narrow local interests.

National preparedness and the development of a national defense program have added considerable strength to the demand for (1) greater efficiency in county and rural government, and (2) the adoption or strengthening of the merit system in county government. For example the Federal Social Security Board has demanded that the New York state constitutional provisions relating to the merit appointment of county administrative officials (including welfare agents) should be put into effect throughout the state as a condition for the receipt of Federal welfare funds.

An interesting illustration of the effect of Federal pressure is seen in San Mateo County, California, where under the Home Rule charter provision an amendment was adopted by a county referendum at the November election empowering the board of supervisors to establish a merit system for county employees. It leaves the board of supervisors free to limit the merit system to county welfare workers who were threatened with inclusion in a state merit system by the State Welfare Board. Federal aid depended on adoption for welfare workers of an approved merit plan in the welfare field. This is also an excellent illustration of the advantage offered by the home rule system to county politicians for blocking statewide extension of the merit system.

Many states (outside of New England where the county is relatively unimportant as a local administrative unit) have authorized the setting up in counties of County Housing Authorities. Several such Authorities during the year were approved and authorized by the United States Housing Authority to build homes for farmers in the low income bracket.

COUNTY CONSOLIDATION

Tennessee.—An educational campaign in favor of city-county consolidation has been conducted in Knoxville, Tenn. and the mayor of Memphis expressed a preference for city-county consolidation in Memphis. The laws of 1939 seem to permit functional consolidation only in the case of city-county consolidation. Consolidation, or mergers of counties, is permitted by the laws of 1939. Only one attempt to make use of the enabling act has been reported. A petition was filed for the merging of Union County with Knox County but local political interests seemed strong enough to block the procedure necessary to bring consolidation before the people.

Colorado.—The University of Denver, through its Department of Government Management, School of Commerce, Accounts and Finance, took the lead in a 1940 educational campaign for county reorganization and the manager plan. A readable pamphlet with adequate maps was published showing logical groupings from a topographical point of view. For example, the six counties of San Louis Valley would make one county having approximately the population of El Paso County. "Where six sets of elected officials exist today—six county courts, six court houses, six jails, six of everything a county needs to function properly—one complete set-up would be doing the combined work of all the counties."

Philadelphia.—The Philadelphia Bureau of Municipal Research, undaunted by previous failures, (see THE AMERICAN YEAR BOOK, 1939, p. 178; 1938, p. 176) again is advocating a constitutional amendment permitting city-county consolidation in 1943. According to *Citizens Business*, Nov. 19, 1940: "If Philadelphia is to begin to enjoy the benefits of consolidation in 1943 the needed constitutional amendment must be started on its way by the legislature that has just been elected." (Nov., 1940). It is further pointed out that the proposed amendment would eliminate the requirement that such non-policy-making officials as sheriff, coroner, register of wills, and recorder of deeds be selected by popular vote. "It would simply merge the city and county of Philadelphia, which are already coterminous geographically, into a single municipal corporation and enable the legislature to give Philadelphia a more unified government than the present constitution permits."

North Dakota.—Consolidation of North Dakota counties (see THE AMERICAN YEAR BOOK, 1939, p. 178) was made possible by the adoption of a constitutional amendment by the voters of the state June 25, 1940. The amendment is an enabling provision authorizing the legislature to provide for consolidation or dissolution of county governments and for changes in the form of county government.

Legislation must be submitted to popular referendum and must be approved by 55 per cent of those voting on the issue.

Ohio.—An interesting example of extra-legal, "gentleman's agreement" type of city-county cooperation is found in the system of centralized purchasing in Hamilton County. It is described as follows by Robert A. Martino of the National Bureau of Standards in the *National Municipal Review,* June, 1940, p. 391: "All purchases for all administrative departments and institutions of the county are handled by the purchasing department. There are no laws in Ohio requiring centralized or coordinated purchasing by counties. The plan of Hamilton County is extra-legal by resolution of the board of county commissioners, by approval of the city council of Cincinnati, and by the board of education, through a committee known as the Coordinating Committee of Hamilton County. This committee consists of the city manager of Cincinnati, the president of the board of county commissioners, the president of the board of education, and a member of the board of trustees of the University of Cincinnati."

New Jersey.—For Essex County, New Jersey (Newark) it is interesting to report that no action has resulted from the model consolidation act, New Jersey Public Laws, 1939, Chapter 343, sponsored by the Princeton Local Government Survey. Conflicts of interest between urban and suburban voters and between "urban politicians" and "suburban reformers" combined with lethargic public opinion and local pride seem to present insurmountable hurdles to geographical consolidation. Functional consolidation is being mentioned as a means of merging many common services "with a marked savings for the taxpayer." (See *National Municipal Review,* October, 1940, pp. 654-659).

FORMS OF COUNTY GOVERNMENT

New York State.—Reform in the structure of county government lost no ground and made some notable advances during the year. The County Manager Plan continued to receive special attention. Notable among county manager charter campaigns was that conducted in Onondaga County. After the 1939 decisive defeat (see THE AMERICAN YEAR BOOK, 1939, p. 179) of a liberal Home Rule Manager, P.R., Charter, Governor Lehman vetoed a bill establishing a limited manager charter for the county. Later, the county board of supervisors appointed a bipartisan county charter commission to investigate and report with recommendations concerning improvements in county government. No new draft similar to the Home Rule Charter of 1939 was proposed. The commission recommended the submission to the voters of the optional county manager system under the Buckley enabling act of 1937. This plan was rejected by the voters of the county at the November 1940 election.

Nassau County, through its County Executive, J. Russel Sprague, has published an informative report on the character and working of a responsible executive type of county government entitled *Nassau County Government,* Sept. 16, 1940. In the words of County Executive Sprague the report "is intended to convey, informally and generally, the story of Nassau County Government. This story embraces a review of the tremendous growth in population, the demands and needs of this population, and the reasons behind the recent change in the county form of government. Also, this report is intended to record and explain the important advancements and reforms effected and results achieved under these changes."

The Nassau County Executive form of government which went into effect Jan. 1, 1938 (see THE AMERICAN YEAR BOOK, 1939, p. 178; 1937, p. 179) recognized "two layers of government" within the county, and attempted to provide a mechanism for the upper or county layer which would obtain county services and capital improvements at a reasonable cost, and would distribute fairly the burden of the cost. The charter provided that the county executive should be charged with the duty of recommending the annual county budget and with the duties and powers of management of that budget. During the period since January 1, 1938 notable savings are reported through scrutiny given to purchases, centralized purchasing, and retrenchment in capital expenditures heretofore charged to taxpayers' money. The financial policy inaugurated under the Nassau charter has been the so-called "even keel" financing,—a policy of spreading the costs yearly and thus eliminating "high and low fluctuations." "By stabilizing the finances year by year, proper provision for budgeting can be made with reasonable assurance that taxpayers would not be met with unexpected changes in any one year."

Departments have been coordinated by creating staff agencies designed to service several departments. Although department heads are held responsible for details of routine, the County Executive "does concern itself with costs, policy, and coordinating service" and with coordination of the work of county, state and federal agencies operating within the county.

The legislature of New York passed an additional law relating to Optional Forms of County Government. (New York *Laws*, 1940, Chapter 639, in effect April 21, 1940.) It provided for granting certain powers to the Board of Supervisors after a favorable referendum vote at an election initiated by a petition of 10 per cent of the number of voters casting ballots for governor at the last election or by a vote of the Board of Supervisors. The powers thus granted include the authority to "transfer any and all of the functions and duties of the county, and the cities, towns, villages, districts and other units of government contained in such county to each other, and abolish offices when all of their functions are so transferred. . . ." In effect the law makes it possible to give to the board of supervisors extensive authority to reorganize local government within the county.

An additional *ad hoc* county authority was authorized by New York *Laws* 1940, Chapter 195. It is the County Water Authority. Such Authority may be set up by the Board of Supervisors of a county "with the prior consent of the Water Power and Control Commission of the State of New York . . . Such Authority shall be a body corporate and politic constituting a public benefit corporation." It is authorized to construct water systems and supply water to privately owned and publicly owned water systems and issue negotiable bonds to finance such system. It shall cease to exist when "all its liabilities have been met and its bonds have been paid in full," . . . at which time "all its rights and properties shall pass to the county for which it was created."

California.—The attempt to restore the manager of San Mateo County to an appointive rather than an elective position was decisively defeated. Civic groups in Los Angeles County are sponsoring a movement to make permanent for their county the manager plan which has been operating under action of the county board of supervisors since 1938. In Ventura County the county grand jury in its 1940 annual report recommended the adoption of the county manager plan by means of a home rule charter.

Oregon.—At least one county manager campaign was conducted in Oregon. Citizen groups organized under the title Greater Clackamas Union of Clubs started a campaign for a county manager plan for Clackamas County.

North Dakota.—The North Dakota constitutional amendment, mentioned above, favored the manager plan to the extent that the legislature is required to include the manager form among the optional forms which it is authorized to draft.

Virginia.—The *Report of the Virginia Commission on County Government to the Governor and the General Assembly*, January, 1940, in the opinion of the writer, ranks among the outstanding contributions to county government during the year. The commission has back of it more than a decade of experience. Its duties were set up by an act of the legislature in 1930 (Virginia *Acts,* 1930, Chapter 268). The commission manifested such independence that the 1940 General Assembly, reported to be rather hostile to county government reform, passed a bill abolishing the commission. The bill was vetoed by the Governor.

The report concisely presents the present position and "main problems of county government" in Virginia; points out the relation of state government to county government; discusses and evaluates county "Home Rule"; points out defects and recommends their elimination; surveys the financial aspects of Virginia county government, including valuation of property, tax rates, and state aid; and presents and evaluates the "six years of practical experience of Albermarle and Henrico Counties with county manager and county executive forms." The Commission ended its recommendations by repeating its 1931 estimate "that a county could save as much as fifteen per cent of its operating costs by adopting one of the optional forms of county government."

Nebraska may be added to the list of states having a constitutional amendment enabling the legislature to enact an optional county manager form of government (see THE AMERICAN YEAR BOOK, 1939, p. 179). The amendment was adopted at the November, 1940 election by a vote of 254,639 for and 173,107 against. The amendment provides that "the legislature may provide by law for a form of county government in which county officers may be elected or appointed, but such form shall be optional with each county and shall obtain in any county only upon the adoption thereof by the electors of such county." This amendment now makes possible the creation of an appointive county manager. The state supreme court had denied the legislative authority to create such an office on the ground that the constitution recognized only elective county officers.

REFORMS

Alabama.—The new Division of Purchases and Stores of the State Department of Finance has offered to counties its purchasing facilities. It is reported that more than half of Alabama's 67 counties have accepted the department's offer.

Tennessee.—The University of Tennessee, through the Bureau of Research of the School of Business Administration, Nov., 1940, published two bulletins in the Local Government Accounting Series. It is significantly pointed out that "Tennessee ranks high among the states in assisting local governments financially. Thirty-six per cent of the county revenue . . . comes from the state. Yet the state offers no general administrative assistance or supervision of its local units." The bulletins present minimum accounting standards for local governments, and advocate the adoption of such standards by every Tennessee unit of local government.

Kentucky.—A forward step in county fiscal administration was made in Kentucky in the form of a report on *The Fee System as a Method of Compensating County Officials.* The study was made and the report prepared by the Research Division of the Kentucky Legislative Council. "The preparation of this study was made possible by a grant from the Spelman Fund." The disadvantages of the fee system in county government is fully exposed, the working of the system in Kentucky counties is factually presented, and the method used in other states for compensating officials is summarized. The study is worthy of notice in every state where the fee system persists.

Chicago.—The outstanding county reform write up for the year was: William F. McDermott's, *Chicago's One-Man Cleanup Campaign,* published in the December *National Municipal Review* and republished in *Reader's Digest,* Jan., 1941 issue. The article points out how a "Hotel man puts Cook County jail, hospital, and poorhouse,—formerly 'fat political pickings'—on a sound business basis."

Massachusetts.—Many civic groups in Massachusetts took up the study of county governmental reform during the year. The committee on State Taxation and Expenditure of the Boston Chamber of Commerce joined in an educational campaign to bring the pressure of public opinion on the 1941 legislature in favor of county reform. The Massachusetts Selectman's Association at its meeting Nov. 23, 1940, while voting "its confidence in the continuance of county government," authorized its Director of Research, Dr. Charles J. Rohr of Massachusetts State College, "to continue his research work in developing studies showing the effectiveness and economy of county government with such changes which might be made to further increase its effectiveness." (*The Massachusetts Selectman,* Vol. V, No. 4, p. 14).

Ohio.—The Citizens League of Cleveland (*Greater Cleveland,* Dec. 19, 1940) points out the failure of the merit system in the county service in Cuyahoga County. It reports: "After twenty-seven years of operation under a sound and sufficient state wide civil service law, there has been a serious breakdown in the administration of the law and in the application of the merit system to county service. The spoil system still runs rampant in many county offices with many positions filled by precinct committeemen and party workers, and most of them by personal friends or political favorites of the appointing authorities. Two per cent clubs for campaign collections continue in most county offices in defiance of state and federal laws."

Tennessee.—Among the many surveys by citizens' organizations, that of the government of Tipton County by the Tennessee Taxpayers Association deserves special mention because of the thorough analysis of the county from the political, governmental, social, and economic points of view.

COUNTY AND REGIONAL PLANNING AND ZONING

Development.—Planning and zoning in county and rural districts reached new heights of development during the year. County planning has developed more extensively in widely separated areas of the United States. The most widely extended area of county planning is found in the six northwestern states—Washington, Oregon, Idaho, Montana, North Dakota, and South Dakota. The adoption of the plan in that area was largely the result of the zeal of the Pacific Northwest Regional Planning Commission. Other states or sections having adopted county planning systems are New York and New Jersey (the New York City metropolitan area), Florida, California (southern half), Wisconsin, Missouri, and the Tennessee Valley Region.

Wisconsin.—An outstanding contribution to County Zoning is the article in the November issue of the *Journal of Land and Public Utility Economics* by J. M. Albers, Area Planning Engineer for the Wisconsin State Planning Board, on "Progress in County Zoning: Marathon County, Wisconsin." Comprehensive County Zoning in Wisconsin dates from 1923 when attention was focused on the need of regulating suburban territory adjacent to cities. Later by 1940 when Marathon County adopted its zoning ordinance, County Zoning was equally pointed toward regulation of "land use so as to prevent continuation of attempts to farm these poorer lands which are better adapted to production of timber crops." The Wisconsin County zoning enabling act is noteworthy for its comprehensiveness. "Counties may now determine and regulate not only the areas in which agriculture, forestry, and recreation may be conducted, but also the location of schools, trades, and industries; the location, height, bulk, and size of buildings; the size of yards, courts, and open spaces; the density and distribution of population; setback building lines, and the uses along natural water courses, streams and creeks."

Illinois.—Noteworthy for its thorough regulation of rural areas adjoining cities is the rural zoning ordinance adopted by Cook County, Aug. 20, 1940. (See *The Journal of Land and Public Utility Economics,* Nov., 1940, pp. 438-442). The Chicago Regional Planning Association is credited with inspiring favorable public opinion for rural zoning in Cook County. The ordinance applies to about three-fifths of the area of Cook County—that portion lying outside of its municipal areas. The ordinance is intended to conserve property values and assure proper development of all land in Cook County outside cities, villages, and incorporated towns.

TOWNS AND VILLAGES

New York State Legislature by Chapter 823 of the Laws of 1940 enacted a village home rule law which grants to villages of more than 5,000 population certain home rule powers. Such powers include "wide powers of local legislation, . . . the power to supersede special state laws relating to the property, affairs, and government, subject to mandatory or permissive referendum"; and authority of village board to submit to voters a new village charter or to create a charter commission to draft and submit to voters such a charter.

Maine towns continued to be "deorganized" during the year. According to the *New England Townsman* (October, 1940) the Maine Legislature in 1939 passed special laws permitting ten towns and plantations throughout the state to surrender their organization. Of these ten towns, two subsequently rejected deorganization, two deorganized and then reorganized as plantations, and six reverted to unorganized territory. The significance of the above is that six organized units of local government were permitted to give up legal identity and to cease to maintain a local government. County and state officials take over such functions as education, roads, and assessment and collection of taxes.

PERIODICAL PUBLICATIONS

State Government
American Legislators' Association, 850 East 58th Street, Chicago.

National County
American County Association, Hotel La Salle, Chicago.

Public Works
310 East 45th Street, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Legislators' Assn., 1313 E. 60th St., Chicago.

Civil Service Forum, 2 Lafayette St., New York City.

National Assn. for Constitutional Government, 716 Colorado Bldg., Washington, D.C.

National Civil Service Reform League, 521 Fifth Ave., New York City.

National Municipal League, 299 Broadway, New York City.

The Council of State Governments, 1313 E. 60th St., Chicago.

DIVISION V
MUNICIPAL GOVERNMENT

NEW YORK CITY AFFAIRS

By Wallace S. Sayre
Civil Service Commissioner, New York

POLITICAL DEVELOPMENTS

In the political field, 1940 saw the preliminary skirmishes foreshadowing the 1941 mayoralty campaign. The LaGuardia administration made another effort to reform the county governments within the city by consolidating and merging most of the county offices. As in 1939, these efforts were repulsed in the state legislature, in the city council, and in the courts. The petition to submit the question of county government reform to the voters as a referendum item at the November election was defeated when the Tammany organization was again able to have the petition marked off the ballot by court action, holding there were insufficient valid signatures upon the petition. The administration was more successful in the defense of Proportional Representation against a third attack upon it. A Tammany petition calling for the abolition of P.R. was defeated at the November election by an overwhelming vote.

Other political developments during the year included the death of Borough President Ingersoll of Brooklyn and the consequent reduction of fusion strength in the Board of Estimate. The year also saw the intensification of the Tammany campaign to recapture the city government through the work of councilmanic investigations. The Department of Sanitation, municipal radio station WNYC, the Department of Hospitals, and the Civil Service Commission were all objects of Tammany-conducted investigations which, as the year ended, were being carefully developed into campaign issues for the 1941 contests.

The latter part of the year saw increasing absorption by the city administration in the new national defense program. Mayor LaGuardia and a number of his administrative aides were active in efforts to integrate local government activities with national defense needs.

CITY FINANCES

The city continued to face stabilizing revenues but continued to enjoy the benefits of sound fiscal operations. The Comptroller reported five major indications of the city's sound financial position at the end of 1940: 1. record high percentage of tax collections; 2. record low interest rates being paid on new obligations; 3. large amounts of old debt redeemed each year; 4. steady replenishment of debt-incurring power; 5. prudent planning of a reduced program of capital improvements in the future.

The Comptroller also reported a record of unfailing debt redemptions totalling more than $2,700,000,000 during the period Jan. 1, 1934 to June 30, 1940, and the building up of the unreserved debt margin from $62,284,087 on April 1, 1937 to $86,765,643 on July 1, 1940. In addition to these major operations, 1940 also saw the consummation of the fiscal agreements providing for transit unification.

The City Treasurer reported that

V. MUNICIPAL GOVERNMENT

1940 was a banner year in the history of the city for tax collections. The following comparative fiscal statistics show this improved condition.

Tax Levies and Collections	1937	1938	1939–40
Assessed valuation	$16,599,695,194.00	$16,650,297,794.00	$16,640,632,939.00
Real estate tax levy	460,246,375.76	490,675,929.54	492,476,163.51
Current tax collections	410,096,992.97	439,759,327.08	446,561,143.88
Arrears tax collections	45,178,175.08	38,700,263.44	42,290,688.72
City's share of state taxes	40,531,432.58	39,097,567.41	36,518,760.00
Miscellaneous city revenues	72,804,925.32	72,759,999.35	76,429,752.00
Emergency tax collections	71,761,738.71	70,511,527.84	79,226,393.00
Certificates outstanding against taxes	63,519,000.00	66,429,000.00	63,129,961.00
Uncollected taxes pledged	164,613,286.00	171,987,713.00	162,814,475.00

CITY PLANNING

By the end of its third year, the City Planning Commission had made substantial progress in developing both the basic concepts upon which any master plan must depend and preparing portions of the Master Plan itself. The underlying concepts were outlined in the Commission's annual reports for 1938 and 1939. The fundamental concern of city planning is the use of land for public and private purposes. The Commission concentrated during 1940, therefore, upon preparing for public hearing and subsequent discussion a Master Plan of Land Use. In order to indicate its evolutionary character, this Master Plan was advertised in two stages, the latter representing desirable future land uses at a considerably later period than the former. Closely associated with the first stage of the Land Use Master Plan was the Master Plan of Sections Containing Areas Suitable for Clearance, Replanning, and Low-Rent Housing. This was officially adopted Jan. 3, 1940 as a guide to the location of public housing projects and proved its value during the year in the Commission's negotiations with the New York City Housing Authority. By the end of 1940, three other master plans were advertised and discussed at public hearings and one additional master plan was officially adopted. Of the three, the Master Plan of Express Highways, Parkways, and Major Streets provided an integrated framework for channelizing heavy traffic streams and for protecting residential neighborhoods for living and play.

The Commission, at the same time, improved its techniques for the implementation of planning by the adoption of several important amendments to the Building Zone Resolution and by the development of written subdivision regulations. The former were allowed to become effective with only minor changes by the Board of Estimate. Both actions by the Commission were based on progressive expert opinion of what constitute reasonable provisions for the protection of both property owners and the city. The Commission, as in past years, studied and adopted zoning map amendments, official map changes, drainage plans, and, of course, a capital budget and program.

CITY PURCHASING

The most important single achievement of the Department of Purchase during 1940 was the dislodgement of the "ring" of printers which had monopolized city printing for many years. One firm which had served as head of the ring from 1870 to 1934, and as deputy head from 1934 to 1940, was forced to liquidate. Another firm which served as head of the ring from 1934 through 1940 was driven into bankruptcy. Numerous small firms which comprised the active membership of the ring were debarred from bidding, and in the late fall were prosecuted by the State Attorney General and were permanently enjoined from continuing such illegal activities in the future. Although there were many investigations of printing between 1870 and 1940, this is the first time that effective legal action has followed the disclosures.

During the year the Department intensified its efforts to award city contracts only to responsible bidders. More than 2,300 financial questionnaires were sent to firms who asked to bid on city work. More than 500 of such firms which refused to disclose their financial record have already been dropped from the Department's bidders' list as a result of this activity.

The Department participated in the city-wide in-service training program of the Municipal Civil Service Commission. Three courses were conducted with a total enrollment of 477. The results of this program were so encouraging that further courses are now being developed for 1941.

LEGAL

Transit Unification.—The Corporation Counsel reports the several major accomplishments for 1940. The Interborough Rapid Transit and Brooklyn-Manhattan Transit subway systems were taken over by the city.

Condemnation.—The award of more than $310,000, originally almost $1,000,000 with interest, for the Larceny Park land under water, was set aside by the Appellate Division of the Second Department. On re-trial, the city succeeded in reducing the award to $72,000. The claim of more than $9,000,000 made by the Gerritsen Basin Development Corporation for property taken in the Floyd Bennett Field and several other Jamaica Bay condemnation proceedings was defeated, and the city's own claim of title to the property was sustained by the Court of Appeals. Tripartite contracts were concluded between the city, the Triborough Bridge Authority, and the New York City Tunnel Authority, satisfactory to the Reconstruction Finance Corporation, for the acquisition of the necessary lands for and the construction of the Brooklyn-Battery Tunnel, as a result of which the Reconstruction Finance Corporation indicated its willingness to lend $57,000,000 to defray the tunnel's construction cost. Condemnation proceedings covering the three-mile route of the Hamilton Avenue-Third Avenue Elevated Parkway connection to the tunnel were completed.

Housing.—The first subsidy contract between the State of New York, the City of New York and the City Housing Authority was negotiated and, as a result, the largest public housing project in the United States—Fort Greene Houses—will be constructed covering 19 city blocks of ex-slum property in the Brooklyn Navy Yard section. Four square blocks of vacant land were acquired for the first Bronx Housing project—Clason Point Houses.

Taxes.—More than 9,000 tax certiorari proceedings to review assessed values of real estate were disposed of during 1940, this new high record being attributable in large part to the expediency of the settlement procedure before the Tri-Departmental Settlement Boards.

PERSONNEL

The Civil Service Commission reported in 1940 continued extension of the competitive class by the transfer of 12,000 sanitation department workers from the labor class into the competitive class. This reclassification was accompanied by the administration of the largest competitive examination in the history of the Commission. More than 85,000 young men competed in a carefully devised qualifying written test and a competitive physical test which measured the traits of agility, coordination, strength, and endurance. The resulting list gives the city for the first time in its history a competitively selected group of candidates for semi-skilled and general labor positions. It has met with enthusiastic reception from the operating departments and, it is believed, establishes a new pattern for the selection of such personnel throughout the country.

The second major accomplishment of the Commission during the year was the successful beginning of the transfer into the competitive class of the 27,000 employees of the recently acquired privately operated subway systems in the city. These employees are being transferred into the competitive classified service as rapidly as the field parties of the Commission's classification unit and the investigators of the Commission's investigation bureau can complete the job descriptions and character investigations of incumbents. On the completion of this program, the city's railroad career service will comprise a personnel of more than 35,000 positions.

By the end of the year, examinations had been given for eight specialized city planning positions by the Civil Service Commission. When all the lists are finally promulgated, one of the few complete graded planning personnel services in the country will have become effective.

The Commission also continued its modernization of personnel administration for New York City by improvement of its examining methods, by the extension of its in-service training program, and by the publication of an effective civil service information bulletin and a research quarterly, *The Public Personnel Quarterly.*

PUBLIC WORKS

At the end of 1940, the Department of Public Works rounded out its third year as the engineering arm of the city charged with the design, construction, and operation of bridges, public buildings, and sewage treatment works. The value of the physical property operated under the Department's jurisdiction—its plant—reached in 1940 a total of about $350,000,000. Included in the make-up of these properties are 48 of the city's bridges valued at about $150,000,000; 66 public buildings housing municipal offices, courts, and other city units with a conservative value estimated at $150,000,000; and four large modern sewage treatment works and ten older small plants, all valued at about $50,000,000.

In addition to the operation of these units in service, designs for new buildings of diversified types, new bridges and additional sewage treatment works were in progress during the year. Alterations or additions to operating structures and new construction, at a cost approximating $25,000,000 on bridges, buildings and sewage works estimated to cost a total of nearly $100,000,000, were completed during the year.

New bridges completed during the year included the Midtown Highway Bridge over Dutch Kills, completed as a link in the highway approach to the Queens-Midtown Tunnel. Other construction, primarily of a maintenance nature, included the redecking of a number of spans and the reinforcement of the main towers of the Williamsburg suspension bridge over the East River.

As in previous years, the buildings under construction comprised a highly diversified group. Outstanding are the Criminal Court and Jail to be completed in 1941, the new Hunter College building, the Queens Borough Hall completed during the year in record time, and the completed Brooklyn Central Library. Numerous structures for other departments, particularly the Departments of Health and Hospitals, were under way.

Gratifying progress was made in the city-wide sewage treatment program although no new plants were put into operation during the year. At present about 35 per cent of the city's sewage is receiving treatment. Construction continued on new plants at Hart Island, Jamaica, and 26th Ward, and also on an extension to double the capacity of the Coney Island plant built in 1935 and additional units to complete the plant at Bowery Bay, Queens, put into partial operation in November 1939. Designs for other plants are in progress, particularly for those at Hunts Point, Bronx; Newton Creek and Owls Head, Brooklyn; and Rockaway, Queens. The rate at which these plants, with a total ultimate capacity of 645,000,000 gallons per day, will go under construction will depend upon the financial policy of the City.

PUBLIC RELIEF

During 1940 the Department of Welfare expended $126,750,655 for public assistance and its administration. The following figures, showing the number of cases and persons receiving public assistance as of Nov. 30, 1940 from the Department of Welfare, reveals the enormous volume of care which it provides.

Type of Case	Cases	Persons
Regular Home Relief	126,532	347,963
Non-settled Home Relief	4,805	11,388
Veteran Home Relief	9,358	32,379
Homeless Care	6,379	6,379
Old Age Assistance	53,937	53,937
Blind Assistance	1,556	1,556
Children's Division	22,172	22,172
Total	224,739	475,774

Practically every day in the year the Department provides the necessities of life for a population in excess of the total population of the City of Cincinnati. The funds for this vast program of public assistance are not provided by the city alone. Of a total expenditure by the Department during 1940, $75,997,704 was provided by the city; $41,345,171 was provided by the state; while $9,407,780 was contributed by the Federal Government.

The most outstanding new development during 1940 was the introduction of the United States Department of Agriculture Relief Milk Program and the Orange and Blue Food Stamp Plan. Under the milk program, the department is providing an extra pint of milk every day to every child on relief under 16. This milk is being made available at the low price of 7.7¢ per quart, which cost is distributed as follows: 3¢ to the city; 2¢ to the state; and 2.7¢ to the Federal Government. It is estimated that the plan will result in the consumption by needy children of 26,820,000 more quarts of milk annually.

The Federal Orange and Blue Stamp Plan was introduced in the Borough of Brooklyn on an experimental basis on Sept. 3. About 20,000 families were, at the close of the year, enjoying the more abundant diet made possible by the increased buying power of the plan. The program has been so successful in Brooklyn that plans were under way by the close of the year to expand it to include all home relief, Board of Child Welfare, WPA, and private agency cases in the City of New York. It is anticipated that the Orange and Blue Stamp Plan will be operating throughout the city early in 1941 for more than 200,000 families.

HEALTH

Health Commissioner Rice reported that safeguarding the health of the people advanced steadily in 1940. The year witnessed the lowest infant mortality rate ever experienced in the city, even though the birth rate was the highest since 1932. New low records were also recorded for maternal mortality, diphtheria, pneumonia, tuberculosis, typhoid fever, and certain other diseases.

The Department of Health took an active part in the national defense program, especially through its tuberculosis, social hygiene, and laboratory services. Social hygiene health educational activities were arranged for the mobilized forces of the National Guard of New York City. In cooperation with the U. S. Public Health Service the draftees of 1940 were given Wassermann tests. In cooperation with the United States Army, chest x-rays were taken at the induction centers of those inducted into the service.

The Sanitary Code was amended to provide for a single designation of milk sold in the city and for a single set of standards to govern the production and sale of all milk in the city, except "certified." The sections of the Sanitary Code relating to drugs and cosmetics were revised to conform to the new Federal Food, Drug and Cosmetic Act of 1938, and the Drug and Cosmetic Act adopted by the New York State Legislature in 1939.

The Department's tuberculosis clinics, combined with the mass x-ray surveys of apparently healthy persons, made in 1940 about 200,000 chest x-ray pictures. Through its mass x-ray surveys the Department's tuberculosis work extended to about 100,000 individuals. Of the latter, 45,000 were vocational high school students. During the year the Department's laboratory made about 650,000 Wassermann blood tests, an increase of 50,000 over 1939.

At the end of 1940, 15 modern new health buildings were in operation. Funds were approved by the city for the building of the Jamaica Health Center and Borough Office of Queens.

HOSPITALS

During 1940, the Department of Hospitals reported the completion of the Triborough Hospital with 600 beds for tuberculosis patients, the opening of the Welfare Island dispensary, and the opening of the Department's new administration building at Bellevue Hospital. The new 400-bed psychiatric unit at Kings County Hospital was well under way by the end of 1940, and work was starting on the tuberculosis pavilion at Riverside Hospital. Other advances in 1940 included affiliation with Columbia University and Presbyterian Hospital for a 300-bed cancer hospital and clinic, the reorganization of the cancer division under a new director, and substantial improvements in nursing and professional staffs, as well as the placing of 4,000 hospital helpers under more satisfactory civil service classification. The Department also completed and promulgated during the year comprehensive new rules for its personnel.

HOUSING

The New York City Housing Authority during 1940 continued operation of First Houses (122 apartments), Harlem River Houses (576 apartments), Williamsburg Houses (1,622 apartments) and Red Hook Houses (2,545 apartments). Queensbridge Houses (3,149 apartments) was completely tenanted on March 14, 1940; South Jamaica Houses (448 apartments) on Aug. 5, 1940; Vladeck-City Houses (240 apartments) on Aug. 9, 1940; and Vladeck Houses (1,531 apartments) on Nov. 14, 1940. By the end of the year, the Authority had as tenants in its projects 10,133 families previously living in substandard housing conditions.

Construction was begun during 1940 on East River Houses (1,170 apartments) and Kingsborough Houses (1,166 apartments), scheduled for completion about May 1, 1941 and Sept. 15, 1941 respectively. Plans were drawn and preconstruction work was begun on Clason Point Houses (400 apartments) and Fort Greene Houses (3,501 apartments), scheduled for completion about Sept. 1, 1941 and Nov. 1, 1942 respectively. Applications for two new projects, Chelsea Houses (738 apartments) and Amsterdam Houses (616 apartments), scheduled for completion about April 1, 1942, were approved. Applications are on file for four new projects, totaling 3,856 apartments, bringing the total number of apartments in all projects in operation, in construction, approved, and submitted for approval, to 21,680 apartments.

Vladeck-City Houses, completed during 1940, is the first municipally financed project in this country. Fort Greene Houses, construction of which will start shortly, will not only be the first state-financed project but also the largest public housing project in this country.

About 60,000 applications for apartments were received during 1940; 47,000 families were investigated and 16,000 were found eligible for apartments in the public housing projects.

During 1940, the Authority continued sponsorship and supervision of a WPA project for the demolition of substandard buildings. It also carried on the work of relocation of low income families forced to find new quarters because of construction of housing projects or condemnation of buildings by the city to clear sites for public improvements or obliged to move for other reasons.

The Department of Housing and Buildings reported completion of its program of administrative reorganization. The Department also began a program of standardizing the interpretations in its various units of the complex regulations governing buildings in the city. Under the provisions of Section 645-a of the New York City Charter, the Department is required to adopt various regulations for the proper administration and interpretation of laws governing the use, occupancy, construction, alteration, and maintenance of structures in the City of New York. In the past year, monthly meetings attended by the Commissioner, Deputy Commissioner and Borough Superintendents, were arranged for the purpose of discussing present and future problems. These monthly meetings effected economies and added to the efficient service rendered by the Department to all those concerned with matters pertaining to building construction, real estate, and the maintenance and use of property, and also provide the city with a method by which it may save money in the administration of the functions concerning inspection of buildings and property, equipment thereof and appurtenances thereto. These meetings result in the establishment of city-wide uniform rules and regulations governing all such matters, together with a uniform interpretation of all "building laws," the various state and local laws, ordinances and rules and regulations pertaining thereto, including, among others, the provisions of the New York Charter, the State Labor Law, the Building Code and the Multiple Dwelling Law.

PARKS

During 1940 the Department of Parks continued expansion of park facilities. Eighteen new playgrounds were added to the park system, and two new outdoor swimming pools and two indoor swimming pools were also added to the recreation facilities of the Department.

The construction of parkways continued with the opening to the public on June 29 of the 34.9 mile Belt Parkway, from Owl's Head Park in Brooklyn to the Bronx-Whitestone Bridge in Queens. This parkway combines the most advanced knowledge of engineering, planting, and recreation; provides separated traffic, three ultimate lanes of pavement in each direction; entrances at strategic points, with accelerating and decelerating lanes; and incidental parks, playgrounds, walks and bicycle paths along its borders.

DEPARTMENT OF CORRECTION

The Department of Correction during 1940 completed the equipment of the Riker's Island Penitentiary. The buildings of this institution are now completed and equipped with modern furnishings throughout. A 50-acre tree nursery was planted on reclaimed dump land in cooperation with the Park Department.

The improvements in the City Prison, Brooklyn, which involve improved lighting, ventilation, and recreational facilities, are designed to accommodate a program of segregation and treatment for the first offenders between the ages of 16 and 21. Pending the construction work in the Brooklyn jail, all young first offenders originating in Kings County are being held in the Annex of the Queens City Prison. When the construction work is completed early in 1941, a well organized program of treatment for young offenders will be established in the City Prison, Brooklyn.

In view of the national movement to improve military defenses, a program of military drill and instruction has been instituted at the New York City Reformatory. The program has been placed in charge of a reserve officer who is a member of the staff and the inmates have shown an unusual aptitude and lively interest in this phase of their institutional program.

POLICE DEPARTMENT

During 1940, the Police Department was again occupied with the numerous problems surrounding the policing of the second year of the New York World's Fair. To this extraordinary police problem was added the difficult task of policing the numerous mass meetings held in the city during the presidential campaign, including the special problem of the protection of the President in his several appearances in the city. This police task ended with the effective policing of the polls on Election Day, Nov. 5, when more than 3,250,000 persons voted throughout the city under such effective police administration that not a single election disorder was reported.

The burdens and responsibilities of the Department were greatly increased during the year by the European war. In addition to special posts and assignments at piers, consulates and public utilities, the Selective Service Training Act necessitated the assignment of several thousand patrolmen to registration places on Oct 16 on which date about 1,000,000 men between the ages of 21 and 36 were registered under the provisions of this act. The registration was conducted without disorder.

In connection with the state-wide plan of the Governor to coordinate all police forces within this state, New York City has been designated as the 8th district, and the remainder of the state has been divided into seven other districts. In order to cooperate in this plan, a Disaster Control Force, consisting of 1,600 specially trained officers and men, has been formed in the Police Department. This force is made up of 20 platoons, within each of which are squads known as Light Rescue Parties, Stretcher Bearer and Evacuation Squads, and the Transport Squad. All members of the Disaster Control Force are instructed in first aid and duties of rescue parties, handling of explosives, acetylene burning, electric emergencies, reconstruction and communication, rigging, shoring and the use of jacks, control of crowds, military drills, and rifle and machine gun practice. The Disaster Control Force has been designed to provide a highly trained group which could be speedily mobilized to cope effectively with a wide variety of emergencies.

The Safety Bureau of the Department broadened its activities during the year to include meetings in cooperation with the Department of Health, Greater New York Safety Council, and the National Conservation Bureau. The program conducted by the Department in public schools was doubled and a program of public education in cooperation with radio broadcasting stations was established. There was a resultant reduction in highway accidents, deaths, and injuries which gave the city its best record during the past ten years.

FIRE DEPARTMENT

The Fire Department during 1940 began its national defense preparations. Fire Commissioner John J. McElligott organized a group of men to study the available resources, both in material and in personnel, that the city would have in the event of a war emergency. Members attended special demonstrations at ammunition plants and took courses in explosives given by army officials. In addition, two battalion chiefs and a fireman went to England for a trip of more than two months to study first hand the effect of incendiary bombs in London and other cities. A complete program, ready to be put in use if the occasion arises, has been devised. The annual fire loss was $9,500,000, an increase of approximately $1,000,000 over 1939. The greatest single loss—$320,000—was the destruction of an airplane hangar at LaGuardia Field. This hangar had not yet been completed and the fire protection devices were not in working order.

TRANSPORTATION

Mayor LaGuardia's program for unification of the rapid transit systems in the city was consummated during 1940, when the city purchased and the Board of Transportation assumed the operation of the BMT rapid transit, trolley and bus system at midnight June 1, 1940, and the operation of the IRT rapid transit system at midnight June 12, 1940, consolidating them with the Independent subway (already operated by the city) into the New York City Transit System. This System now comprises 545.65 route miles of lines over which run more than 8,000 cars and buses carrying a daily average of 6,393,329 passengers.

The Board of Transportation completed construction of the Sixth Avenue subway from West 4th Street to 53rd Street, and on Dec. 15, 1940 Mayor LaGuardia formally opened the new line to the public. The Sixth Avenue line added two new train services to the schedule of the IND division of the New York City Transit System.

On May 1, 1940, the city purchased that portion of the New York-Westchester-and-Boston Railway within the City of New York from the Hutchinson River near Pelham Manor to East 174th Street, Bronx, for $1,402,201, turning it over to the Board of Transportation for operation as part of the unified system. Contracts were let promptly and work is now under way on rehabilitation of the structure, stations and equipment, so that service may be provided between Dyer Avenue station and East 180th Street station, where passengers may change to the White Plains Road line of the IRT division.

On Oct. 10, 1940, the Board of Estimate authorized expenditure of a little more than $2,000,000 for the construction of a connection between the Smith-Ninth Street line of the IND division and the Culver line of the BMT division at McDonald and Church Avenues in Brooklyn. Engineering plans and contracts have been prepared by the Board of Transportation. The connection between the two lines will consist of a ramp about 1,000 feet long and will permit through operation of IND division trains to Coney Island.

During the latter half of 1940, the Board of Transportation contracted for the demolition of the Ninth Avenue elevated line. Work was begun on Oct. 7, 1940. It is expected that demolition will be completed in March 1941. The Board also advertised for bids on the demolition of that part of the Second Avenue elevated line between 60th Street and 129th Street. Construction work has progressed steadily on the four-track, three-mile extension of the Fulton Street subway line in Brooklyn from Rockaway Avenue to Grant Avenue.

CITY POLITICS

By Howard P. Jones

Secretary, National Municipal League

NEW YORK CITY

Because of the great concentration of attention by the public on national and state issues at election time in the years when a President is chosen, American cities have gradually shifted the dates of municipal elections so that now, with few exceptions, they are held in the odd-numbered years. Consequently, at the end of 1940 there is comparatively little activity to report in the field of city politics.

Although there was no regular city election scheduled in the world's largest city, New York voters, however, were faced with one municipal political issue to be decided on Election Day. This was the question of whether or not the city should abandon proportional representation, the method of choosing city council members which had been adopted with the new charter in 1936. Although there was a fear on the part of the proponents of proportional representation that the question would be lost track of in the confusion of other issues, the proposal was soundly defeated and, unless something intervenes, the city will hold its third P.R. election, in November, 1941. At that time also a mayor for the city will be chosen and a good deal of attention has already been devoted to the question of possible candidates in the contest.

MILWAUKEE

Certainly one of the most surprising events of 1940 was the defeat in April of Mayor Daniel W. Hoan of Milwaukee, Wis. by a 32-year-old newcomer to politics, former Assistant City Attorney Carl J. Zeidler. This ended Hoan's 30 years of public service to the City of Milwaukee, 24 as mayor and six as city attorney. Hoan's record of successive campaigns and administrations as mayor, beginning in 1916, is unprecedented in the annals of American metropolitan cities. Although Hoan always ran on a Socialist ticket, his supporters were from all parties and a large majority of them were non-Socialists. It was the honesty and efficiency of his administration which enabled him to return to office again and again, and it was due to his efforts and foresightedness that Milwaukee's finances were placed on such a sound basis that the city will be debt-free in 1943, the largest city in the country to be in that enviable position.

KANSAS CITY, KAN.

With Tom Pendergast, long-time political boss of Kansas City, finally in jail, Kansas City's efforts to reform its city government had only begun. The year 1940 was devoted to the additional steps necessary to obtain for the city an administration which would carry out the real intent of the city's council-manager charter. After an unsuccessful attempt to recall members of the city council, which was dominated by the Pendergast machine, a special election was held in February at which six charter amendments were submitted to the voters, most important of which was the first reducing the term of office of the mayor, eight councilmen and two municipal judges from fours years to two years, thus terminating the terms of the then incumbents on April 17, 1940 rather than two years later. As a result of a strong campaign by the coalition of anti-machine interests, this was adopted.

On April 2 an election was held and a new council chosen. The council proceeded immediately to hire a new manager, L. P. Cookingham, who had an excellent record as city manager of Saginaw, Mich. and other cities. It remains to be seen, of course, just how completely the citizens of Kansas City have been able to throw off the machine psychology with which they have been handicapped for so long, but certainly the prospects for honest, efficient government in that city seem brighter than at any time since the adoption of the charter 15 years ago.

NEWARK, N. J.

Newark, N. J. also had a special election this year on Feb. 20 when a referendum on adoption of the council-manager plan was submitted to the voters. The measure which was sponsored by a newly created citizens' organization, the Citizens Union, failed by approximately a two-to-one vote. The Union members made a post-election canvass and discovered that many illegal votes had been cast. This information was brought before the Grand Jury and later before the County Election Board. When the Board subpoenaed and tried the precinct election officers, the first 26 were found guilty and disbarred from future service. In addition, a new commissioner of registration was appointed and the registration lists were investigated with the result that, since 24 per cent of the voters listed were not found, a total of 30,000 names were stricken from the lists.

JERSEY CITY

In nearby Jersey City the regular municipal election was held, and Mayor Hague was returned to office. Jersey City operates under the commission form of government, as do many cities in the state, so that Hague is merely one of the commissioners, who is designated as mayor. The city was much in the limelight in the fall when the state legislature passed, over the Governor's veto, a law requiring that voting machines be installed in Hudson County in which Jersey City is situated. Due to technicalities it was not possible to have the machines in use in time for the November election, but they are expected to be ready in the spring. Meanwhile an investigation of election procedure in Jersey City and other parts of Hudson County proceeds before a committee of the United States Senate.

PROVIDENCE

Late in 1939 the voters of the city of Providence, R. I. adopted a new city charter which was later ratified by the General Assembly of the state. The first election under the provisions of the charter was held in November, 1940, when the members of the city council were chosen. This council consists of 26 members, in contrast with the old bicameral legislative body with its 52 members. The new charter was drafted by a charter commission appointed as a result of a strenuous campaign in 1939 for a council-manager charter for Providence. The charter does not make any very far-reaching changes in the administrative organization of the city government.

COUNCIL-MANAGER ADMINISTRATION

Superior, Wis.—Efforts by cities to obtain for themselves the most up-to-date reforms in municipal administration continued, and 1940 saw the 500th city adopt the council-manager plan. Wide publicity was given the event in April, when Superior, Wis. voted to operate under this form of government. A strong campaign on behalf of the plan, led by the League of Women Voters, was responsible for the final success.

Massachusetts Cities.—The largest city to adopt the manager plan during the year was Cambridge, Mass. which, following an unsuccessful campaign in 1938, voted in November to operate under Plan E, one of the optional forms of city government made available to Massachusetts cities by the state legislature. Plan E includes election of the council by proportional representation in addition to the manager plan. The first election in Cambridge under Plan E will be held in November, 1941. Other Massachusetts cities which voted on the manager plan but failed to adopt it were Haverhill, Quincy, North Adams, and Chicopee. In the first of these, Haverhill, the vote was so close that only a recount determined that the plan had been defeated.

Adoptions and Rejections.—Other communities adopting the plan during the year included Silverton, Ore., Clawson and Traverse City, Mich., and San Benito, Tex. In addition, five Maine towns, three Vermont towns, and one Connecticut town voted to operate under the plan at town meetings. Proposals to adopt the manager plan were voted on by a total of 18 cities, but failed to carry. Most important of these were San Antonio, Tex., Little Rock, Ark., and Atlantic City and Bayonne, N. J.

Three small communities decided to abandon council-manager government, Huron, S. D. which operated under the plan four years; Jay, Me. which had never operated under the plan; and Hardwick Village, Vt. which had the plan three years. Schenectady, N. Y.; Cleveland, Okla., and Castleton, Vt. voted to retain the plan during the past year.

Indiana.—Late in September the Indiana City Manager Study Commission, created by joint resolution of the state legislature to draft legislation authorizing the adoption of the council-manager form of government by Indiana cities, submitted its report. The report was accompanied by a draft of a self-executing amendment to the state constitution and, therefore, if adopted, will require no further action by the General Assembly in the form of enabling legislation. Action on the amendment is expected during the 1941 legislative session. If passed, the amendment must be repassed by the legislature at its next session in 1943 and then submitted to the voters of the state at a general election.

Pennsylvania.—A statewide campaign by cooperating citizen organizations is being actively pushed to try once again for enabling legislation which will give life to the home rule provisions of the state constitution. Proposed legislation will be submitted to the state legislature during its 1941 session.

New Hampshire and Connecticut.—In both states efforts were begun during 1940 to prepare legislation which would make it easier for towns and cities in those states to adopt council-manager government. The improved forms will be submitted to the respective state legislatures.

PROPORTIONAL REPRESENTATION

In addition to the Massachusetts cities which voted on Plan E in 1940, two cities made serious attempts to vote on the introduction of the manager plan and the proportional representation system of electing city council members. Early in the year White Plains, N. Y. launched a second campaign for this purpose, but found it necessary to abandon action because of failure to obtain a sufficient number of signatures on the petitions. In Johnstown, N. Y. an amendment to the present charter, providing the manager plan with proportional representation, was filed for submission to the voters. The courts, however, declared the amendment constituted a new charter rather than an amendment and, therefore, should have been submitted under other provisions of the law.

THE OUTLOOK

Prospects for activity in 1941 look bright. With New York City leading off with the election of a mayor and many other cities scheduled to hold municipal elections, there will undoubtedly be plenty of political fireworks. And with more and more states waking up to the necessity of allowing their cities an opportunity to adopt governmental reforms if they so desire, 1941 should see real progress in that field.

FUNCTIONS AND TYPES OF MUNICIPAL GOVERNMENT

By Clinton Rogers Woodruff

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MUNICIPAL GOVERNMENT

Sixty-two per cent of all cities over 5,000 population operate under the mayor-council plan; 17 percent under the commission plan; 16.7 per cent under the council-manager plan and the remainder operate under the town meeting plan. Among the cities of 5,000 to 10,000, 71 per cent are mayor-council cities, and more council-manager than commission cities make up the remainder. Among the cities of 200,000 to 500,000 and 30,000 to 100,000, over one-fourth have the council-manager plan.

While 60 per cent of the mayor-council cities over 5,000 require council candidates to run for election under a party designation, 76 per cent of the commission and 87 per cent of the council-manager cities have a nonpartisan ballot. Over one-half of the mayor-council cities elect councilmen for a term of two years, while in commission cities 58 per cent elect councilmen for four-year terms, and in council-manager cities, 45 per cent elect for four-year terms. There is a great variation in the salaries paid to council members. In only 20 cities are councilmen paid $5,000 a year or more, and in 388 cities, or 22 per cent of all cities over 5,000, councilmen are unpaid.

In addition to the mayor and council, the city treasurer and city clerk are most often subject to direct popular control, being elected by the people in 43 per cent and 29 per cent respectively of the reporting cities.

Election by the people is more common in small than in large cities. It is significant that almost 40 per cent of the cities over 5,000 report that none of 12 leading officials is elected by the people.

LOCAL TAXING UNITS

According to the 1940 edition of the Municipal Year Book there were 161,096 local taxing units in the United States in 1939. Compared to the count made by the U.S. Bureau of the Census in 1934, this shows a reduction of two in the number of counties, an increase of 61 in the number of incorporated places, a decrease of 6,960 in the number of school districts, a decrease of 677 in the number of townships, and an increase of 1,026 in the category of "other units". The incorporated places include 1,807 cities (1930 census) over 5,000 population.

TAX ASSESSMENTS AND RATES

Assessed valuations in cities over 30,000 decreased by about one-half of one per cent below the 1938 figure, making a total decrease since 1933 of 8.4 per cent. Tax rates increased; the average 1939 adjusted tax rate for 257 cities over 30,000 was $27.57 per $1,000 assessed value, an increase of 45 cents over 1938. Thus while assessed valuations decreased 8.4 per cent, tax rates increased 10.4 per cent since 1933. With regard to bonded debt, of the 249 cities reporting in both 1938 and 1939, 131, or 53 per cent showed a decrease in net debt less utilities, and 40 per cent showed an increase. Less than one-half of the 310 cities over 30,000 population have centralized purchasing. Of the 123 cities which reported data on centralized purchasing, 30 per cent adopted this plan during the last decade, eight cities being added to the list in 1939.

EDUCATION IN ADMINISTRATION

Eighty-two colleges and universities in the United States offer programs of educational preparation for public administration, eight more than in 1938. With respect to in-service training, 30 states were active in fire training, 21 in police training, and 15 states extended their programs beyond these two traditional fields. Only 10 states were wholly inactive in public service in 1939. Total reimbursements from Federal funds for public service training activities exceeded $90,000 in 1939. At the administrative level the Institute for Training in Municipal Administration issued a new course in local welfare administration to join the six already released. During 1939 the Institute enrolled 149 public officials and issued 71 certificates of satisfactory completion.

EXTENSION OF BANKRUPTCY ACT

The extended Municipal Bankruptcy act, signed by the President on June 28, authorizes approximately 1,500 cities, counties and other local governments to take advantage of its terms. The amendments to the act make it possible for local governments, with the consent of creditors to adjust their debts until June 30, 1942. Most significant among the changes is the inclusion of special assessment districts and county governments hitherto omitted. The amended act also specifies that the fiscal agent, attorney or other person promoting the composition of debts under the act shall not receive compensation for his services from both the governmental unit and the bondholders.

The number of localities struggling with debt default is fewer by several hundred than it was when the Federal act was first approved in 1934, and almost 200 fewer than even a year back, exclusive of special assessment districts. As of Feb. 1, 1940, a total of 734 cities and counties were in default; on the same date in 1939, the number stood at 824. Six hundred school districts and 137 other districts—water, sanitation, etc.—were also listed as being in arrears with their bonded debt payments, although the actual number is probably much larger. As late as 1938, it was estimated that 3,100 local governments, about 2 per cent of all local units in the country, had defaulted. Only a few, however, have reduced the principal of their debts.

Not all defaulting governmental units settle their difficulties by applying the bankruptcy act. A number of them have taken advantage of the recent favorable interest rates on bonds and have provided for refundings and readjustments. A majority of defaults are adjusted by direct dealings between the interested parties. Other factors, such as "cash basis" legislation in New Jersey and improved economic conditions in Florida cities, have aided recovery in the worst default areas.

PARKING METERS

Upwards of 155 cities in the United States now use parking meters to regulate parking in congested business and residential areas and approximately $3,470,000 was obtained from meters in 1939 in 102 of these cities. A report of this information is published by the American Public Works Association, which shows the increases in the use of parking meters since 1935, when Oklahoma City made the original installation. Dallas and El Paso also adopted the meters that year. Since then, the use of parking meters has grown rapidly. Seventeen cities installed them in 1936, 29 cities in 1937, 35 in 1938, 55 in 1939, and 16 cities in the first two months of 1940. Four cities reinstalled parking meters after having once abandoned them. Meters have been abandoned by nine cities, however.

Besides regulating parking, the parking meter is an important source of revenue to many cities. The 102 cities reporting revenue figures for 1939 took in approximately $290,000 a month, or about $2,844 a month per city. The report pointed out that the number of meters used varies greatly from city to city and that the income may be a considerable sum in cities using a large number of meters. Houston, Tex., with 3,869 meters, reported more than $260,000 in revenue for 1939, while Washington, D.C., a much larger city, received about $38,000 from 300 meters.

Parking meters operate generally on a nickel charge for 30 minutes to two hours' parking time, depending usually on the type of district in which the meter is located. New developments are the penny and the accumulative penny and nickel meter. Penny meters usually permit parking for 15 minutes, and a motorist frequently can deposit several pennies for several such periods. Salt Lake City has both penny and nickel accumulative meters, and a motorist may insert one to four pennies for 12 minutes each, or one or two nickels for one hour's parking each.

One hundred and fifty-five cities use either automatic meters, which predominate in the 29 cities of over 100,000 population, or manual meters, which predominate in the 126 cities under 100,000 population. An analysis of per meter revenue reports shows that revenue per automatic meter is 15 per cent higher than revenue per manual meter. The American Public Works Association stated this was consistent with experience in several cities which have had both types of meters. In one city a change from manual to automatic meters increased revenues about 30 per cent, due probably to the fact that in using the hand operated meter, motorists will fail, accidentally or intentionally, to turn the handle after inserting the coin, and park over the specified time. Police find it difficult to issue over-parking tags because they can not tell when the car was parked. However, a study of installations made in the 16 cities failed to show any clear preference. Eight cities ordered each type, although the two largest cities installed automatic meters.

CITY GOVERNMENT MERGERS

New Jersey is giving increasing attention to the subject of municipal consolidation. There is widespread belief that carefully planned mergers of municipal governments, particularly in urban areas, might offer good opportunities for substantial reduction in local operating costs, thus paving the way to lower taxes. The New Jersey State Chamber of Commerce and the Princeton Local Government Survey, convinced that the subject deserved some thoroughgoing exploration, decided to join in making a series of field studies to determine just how productive these opportunities for tax savings and for improved service standards might be.

At the outset it was essential that a workable municipal consolidation law be enacted. New Jersey had laws permitting the merger of two municipalities, but under circumstances savoring of *anschluss*. They were really annexation laws. A new law was needed which would permit two municipalities to consolidate on a mutually voluntary basis, according to a carefully worked-out reorganization plan. Such legislation, drafted early in 1939 at Princeton, was passed.

MILK DISTRIBUTION

Both producers and consumers for years have been dissatisfied with the high costs of milk distribution. Only one-half of the dollar which consumers pay for milk goes to the farmer who produces it, the other half goes for processing and distributing. Numerous studies have been made of ways for reducing milk distribution costs; many proposals have been made for accomplishing this end. Among them has been the suggestion, which has been gaining increasing attention, of making milk distribution a public utility. The College of Agriculture of the University of Wisconsin, under the direction of Prof. W. P. Mortenson, has made a four-year study of the advantage and limitations of milk distribution under public utility control, the results of which have been published in the book, *Milk Distribution as a Public Utility*, which Professor Mortenson has written.

CITY-COUNTY MERGERS IN TEXAS

By an amendment to its constitution, Texas has made possible the merger of city and county government in counties of more than 62,000 population. The constitutional amendment applies to at least a dozen of the 254 counties that comprise the state. The legislature has passed an enabling act which sets up the procedure under which such mergers can be accomplished. By special act of the legislature the law may be applied to smaller counties. The same constitutional amendment and "home rule act" permit the reorganization of county government. Under them any county in the state may abandon the outmoded government set up when Texas became a state, with its divided authority, its long ballot, and the opportunities it offers for buck-passing and confusion. Modification of the present system, or a county manager plan of commission government, may be adopted, as each county may elect.

THE WORK-WEEK IN CITIES

A report has been issued on the experiences of certain American cities on the five-day working week in civic employment. In at least nine cities of the U.S.A. all municipal employees, except policemen, firemen and some workers in departments that operate on a 24-hour basis, are on a five-day 40-hour week: Chicago, Detroit, Los Angeles Board of Education, Milwaukee, Minneapolis, San Francisco, Seattle, Rockford, Ill., and Escanaba, Mich. In five other cities the five-day week applies to a limited number of employees: Cincinnati, Reading, Sacramento, Schenectady, and Everett, Wash. The five-day week was adopted in most of these cities in 1932 or 1933 when salaries and wages were being reduced in nearly all municipalities. The shorter working week was considered an offset to reductions in pay. Salary cuts have since been restored in nearly all of these cities, but the five-day week remains.

GROWTH OF COUNCIL-MANAGER PLAN

Superior, Wisconsin, became the 500th community to have the council-manager form of government by virtue of the April 2, 1940 referendum at which voters ratified a manager plan city charter. Superior is a city of 36,113 population on the west end of Lake Superior. Use of the manager plan, which has set the pace for American cities, especially the smaller ones, by use of business-like methods and the employment of trained experts, was begun in 1908, when the council of Staunton, Va. appointed an engineer "general manager" in charge of administrative affairs. By 1918, 101 cities were using the council-manager plan; in 1928, there were 348 cities which were employing an expert manager for the administrative side of government; and now Superior brings the total to 500.

A prediction that, within another 30 years, the council-manager plan will be the standard method of operation for American cities was made by Richard S. Childs, New York City business man. Since then the plan has had greater success in reducing government costs and increasing quality and quantity of services than any other governmental plan yet devised.

NEW PROVIDENCE (R. I.) CHARTER

A new charter for Providence, Rhode Island, embodying a one-branch city council of 26 members, instead of the bicameral council of 52 members, a strong mayor, and civil service went into effect Jan. 1, 1941 as a result of the action by the Rhode Island legislature. The new charter also provides that all proposed bond issues, except for paying or refunding bonded indebtedness must be approved by the voters at referenda and that the council must keep a balanced budget at all times. The charter is virtually identical with that approved by the voters late in 1939.

CITIZENSHIP AND GOVERNMENT

Growing awareness of the need for popular understanding of problems of responsible citizenship in a democracy has encouraged the National Municipal League to help local civic organizations conduct regional conferences on citizenship and government. Three regional conferences, patterned largely after the National Conferences on Government which the League has sponsored each year since 1894, were held in Atlanta, Ga., Minneapolis, Minn., and Dallas, Tex. The League is also sponsoring a new program on education for self-government. Representatives of more than 200 colleges, universities, and national citizens organizations met at Indiana University to discuss specific projects in which educational institutions can serve civic groups in their areas as fact-finding agencies.

CENTRALIZED PURCHASING ORDINANCE

Springfield, Mass., recently enacted a centralized purchasing ordinance which is symbolic of the best organization and principles in municipal purchasing. The ordinance provides that the purchasing agent shall have at least five years' experience in industrial or public purchasing and provides a salary of $5,200 to $6,000 for the position. The ordinance provides "that it shall be the duty of the purchasing agent to purchase or contract for all supplies, materials, equipment and contractural services needed by any and all departments of the city of Springfield." This highly centralized system fixes authority and responsibility in the hands of a specialist, permits the setting up of specifications for all using departments, permits the combination of all requirements of all departments, enables the city to make purchases when conditions are most favorable, and encourages the purchase of substitute commodities, which will pave the way to economies.

To obtain information of purchasing practices in counties throughout the United States, and to determine in what way the National Bureau of Standards could be of assistance to these tax-supported agencies in solving purchasing problems, a questionnaire was circulated, with a result that pointed clearly to the need of improvement. Addressed to the official in charge of purchasing in each of the 3,070 counties in the 48 states, the questionnaire requested information on the establishment of a purchasing agency; method of appointing a purchasing agent, whether by civil service or otherwise; extent of purchasing for county agencies; indications as to whether purchases are made on contracts based on written specifications or by trade-name or brand. The questionnaire also inquired about standards and specifications; adoption and use of specifications of national technical organizations and those of the Federal Government; arrangements made for testing samples submitted with bids and samples of deliveries; maintenance of testing laboratories by counties; and use made of college or university testing laboratories. Replies numbered 1,177, and 430 of them were disregarded because they were not usefully informative. An analysis of the others appeared in an article in the *National Municipal Review.*

Centralizing purchasing has been defined by Dr. Russel Forbes, Commissioner of Purchase of New York City, as "the delegation of one office of the authority to buy supplies, materials, and equipment needed by all the operating branches of an organization" occurs in not more than 75 counties of the United States. From replies received California leads in the number of counties (18) which have adopted centralized purchasing in accordance with the political code of that state.

Perhaps the outstanding system of centralized purchasing in Ohio is in Hamilton County. All purchases for all administrative departments and institutions of the county are handled by the purchasing department. Recognition should be given to the fact that a large number of counties in this country are small both geographically and in population. The establishment of a purchasing department and the maintenance of a purchasing agent in a majority of these counties might constitute an undue burden on the taxpayers.

POLICE

Some idea of the extent of the American police force may be gathered from the table next page which show the average number of police department employees in 1939 by geographic divisions and population reports.

POLICE USE OF MOTION PICTURES

An increase in the use of motion pictures in the law-enforcement field —for educating the public, for instructing police officers, and for gathering evidence—is noted by the International Association of Chiefs of Police in endorsing the film "Know Your Money" based on the detection of counterfeit currency. This motion picture, prepared by the U.S. Secret Service is to be exhibited to police departments of the larger cities as well as to the public and is designed to suppress counterfeiting through education rather than prosecution. It is a motion picture "short" of the same educational qualities as "Drunk Driving" released to theaters recently and also endorsed by the Association.

Motion pictures have been put to a greater use as a means of training, however. They are being used by police and fire departments to instruct recruits, and by public health services of many cities in connection with various public health campaigns.

Movies showing training procedures of the New York City, Milwaukee, and Kansas City, Mo. police departments were made within the year, and are used in the training not only of recruits, but of regular department members. The Milwaukee Police Department has made short movies of traffic officers in action, using the films later to call attention to the officers' good and bad points.

There has also been an increase in the use of motion pictures in the crime detection field. California state and municipal police, for example, are using motion pictures in their campaigns against drunken driving and traffic offenders. Motorists suspected of driving while drunk are filmed by Fresno and Sacramento police at the station, and reckless drivers are photographed in action by cameras mounted on the windshields of California highway patrol cars.

Division	Population						Total
	Group I	Group II	Group III	Group IV	Group V	Group VI	
	Over 250,000	100,000 to 250,000	50,000 to 100,000	25,000 to 50,000	10,000 to 25,000	Less than 10,000	
New England:							
Number of police employees	2,920	3,016	1,391	1,591	1,392	616	10,926
Average number of employees per 1,000 inhabitants	2.80	1.91	1.60	1.44	1.21	1.16	1.74
Middle Atlantic:							
Number of police employees	30,098	2,517	2,514	1,816	2,884	2,591	42,420
Average number of employees per 1,000 inhabitants	2.62	1.72	1.53	1.40	1.20	1.24	2.08
East North Central:							
Number of police employees	15,673	1,511	2,017	1,904	1,658	2,058	24,821
Average number of employees per 1,000 inhabitants	1.87	1.09	1.19	1.00	0.93	1.01	1.45
West North Central:							
Number of police employees	3,760	812	529	371	886	955	7,313
Average number of employees per 1,000 inhabitants	1.88	1.15	1.09	1.00	0.97	0.92	1.33
South Atlantic:[1]							
Number of police employees	3,903	1,267	1,310	881	772	1,039	9,172
Average number of employees per 1,000 inhabitants	2.45	1.64	1.41	1.34	1.18	1.27	1.69
East South Central:							
Number of police employees	1,009	527	368	255	451	416	3,026
Average number of employees per 1,000 inhabitants	1.18	1.35	1.43	1.16	1.05	1.06	1.19
West South Central:							
Number of police employees	1,582	1,008	497	410	521	693	4,711
Average number of employees per 1,000 inhabitants	1.48	1.16	1.11	1.05	0.88	0.91	1.14
Mountain:							
Number of police employees	411	166	138	217	254	456	1,642
Average number of employees per 1,000 inhabitants	1.40	1.15	1.35	1.05	1.03	0.97	1.12
Pacific:							
Number of police employees	5,574	722	593	605	682	1,019	9,195
Average number of employees per 1,000 inhabitants	1.86	1.33	1.30	1.20	1.14	1.46	1.59
Total:							
Number of police employees	64,930	11,546	9,357	8,050	9,500	9,843	113,226
Average number of employees per 1,000 inhabitants	2.19	1.47	1.36	1.21	1.08	1.11	1.65

[1] Includes Washington, D. C.

MEDIAN POLICE AND OTHER DATA

Among cities of over 500,000 to 1.26 in cities from 30,000 to 100,000, the median number of police employees varies from a high of 2.25 per 1,000 population. Of the 875 cities over 10,000, for which information on the number of police automobiles is available, there is an average of 16.5 cars per 100,000 population, or one automobile for each 11 policemen. With regard to radio facilities, 52 per cent of all police automobiles in all cities over 10,000 are equipped with one-way, and 26 per cent with two-way radios. Virtually every city over 30,000 which has radio facilities owns and operates its own fixed transmitter, but only 86 per cent of those between 30,000 and 100,000 and 61 per cent of those between 10,000 and 30,000 own transmitters. Median beginning salaries for patrolmen are $1,500 among the smallest cities and $1,860 among the largest, and the median of maximum salaries of patrolmen varies from $1,680 to $2,310.

Salary and wage expenditures for the police department in 1939 were $3.99 per capita in all cities over 10,000 and the total expenditures $4.71 per capita. Per capita expenditures for police departments in cities over 500,000 are more than twice as great as in the cities from 30,000 to 100,000 and three times as great as in cities from 10,000 to 30,000. Median crime rates show a moderate tendency to increase with size of the city, but rates for murder and crimes against property are relatively low in cities over 500,000.

POLICE USE OF PLANES IN NEW YORK

New York police department purchased for use by the Emergency Service Division an airplane and a seaplane which daily patrol the skies and especially at week ends survey and report on the streets and highways in and around the metropolis. The seaplane is of special service in aiding drowning persons, and ships in distress and in locating missing boats. The two planes, and a landplane are powered by a 450-hp Wright whirlwind motor with top speed of 175 mph. They are 27 feet long, have a wing-spread of 40 feet, and are "easy to handle". An unusual feature is their equipment for ambulance service, with first-aid kits, stretchers, flares, asbestos suits, and door larger than standard. They carry a Fairchild aerial camera for photographing sections of the city. Based at Floyd Bennett Field, they are serviced by six mechanics and aviated by six pilots trained for instrument (blind) flying, top rating. The pilots also carry third-class radio-operator licenses, for the planes are equipped with two-way radio covering weather, police, aircraft, and ultra-high-frequency bands, the last for talking to radio cars, police launches, and other planes in flight. New York City police have used airplanes since 1929, when private donations provided six, all now obsolete.

CRIME STATISTICS

With few exceptions, during the first 6 months of 1940 the average city with over 100,000 inhabitants experienced more crime per unit of population than the average smaller community. These larger cities, during the first half of 1940, showed the highest crime rates for offenses of criminal homicide, robbery, burglary, larceny and auto theft.

More offenses of rape per unit of population occurred during the first six months in cities with populations in excess of 250,000 and the next highest rate was seen in cities with populations between 2,500 and 10,000. Aggravated assaults occurred with greatest frequency in cities between 100,000 and 250,000 and cities over 250,000 respectively.

Most of the offenses listed on the monthly reports received at the FBI were classified as larcenies. These cases constituted 58.5 per cent of all offenses reported during the first six months of 1940. Burglary offenses made up 22.9 per cent of the total; auto thefts 11.1 per cent; and robberies 3.5 per cent. Thus, 96.0 per cent of the total crimes reported consisted of offenses against property. Offenses against the person, aggravated assault, rape and criminal homicide represented only 4 per cent of the total crimes.

These data are based on crime reports received by the Federal Bureau of Investigation from 1,953 cities with over 2,500 inhabitants, representing a total population of 61,780,182. The information is presented in table 39 of the report in such a manner that interested persons may compare crime conditions in a particular community with average figures for other cities in the United States of approximately the same size. The number of offenses per 100,000 inhabitants for cities grouped not only as to size but also by geographic division is presented in table 42 of the report.

WARTIME FIRE PROTECTION

The outstanding development in the field of fire prevention during the year was the interest aroused by the use of incendiary bombs in the current war and the problems of protecting cities against this form of fire attack. The problems of fire defense in the event of war are being carefully considered in both the United States and Canada by the organizations concerned with fire protection matters. The National Fire Protection Association published considerable material on the effect of incendiary bombs, and the City of New York now has three fire department men in London observing the situation there. These men will presumably make their experiences and views available to fire departments in this country. The Boston Fire Department has already organized an auxiliary fire force of interested civilian volunteers and is giving them training in the elements of fire fighting for possible use in an emergency. The International Association of Fire Chiefs has prepared a suggested disaster emergency plan for use in cities and distributed copies to its members.

A related problem in connection with the national defense program is the problem of sabotage and much study is being given to the protection of essential industries producing war materials against fires set by foreign agents or sympathizers. The Federal Bureau of Investigation is concerning itself with the problem and the various insurance organizations, fire departments, and others are taking steps to improve the protection of industrial properties and to carry out rigid inspections.

FIRE PREVENTION

Interest in the training of firemen continues to grow substantially and it is estimated that during the year over 80,000 firemen received training through the cooperation of Departments of Vocational Education and State Colleges.

It is interesting to note that the importance of making simple inspections of dwellings by firemen continues to be more widely recognized by larger cities. In a number of these, such as Boston, Cincinnati, Buffalo, Cleveland, Detroit, Minneapolis and St. Paul, they have taken steps to carry out inspections in homes. Such inspections have materially reduced the number of home fires wherever they have been instituted.

In the field of municipal fire prevention the City of Cincinnati last year was considered a leader and was given the grand award in the International Fire Waste Contest conducted by the U.S. Chamber of Commerce.

In the technical field a number of important contributions were made during the year. A new edition of the National Electrical Code produced by the Electrical Committee of the National Fire Protection Association made its appearance. This is probably the most widely adopted fire prevention standard in common use. The Association also produced a series of national codes on dust explosions and a complete revision of its regulations on the installation of automatic sprinklers.

A notable addition to safety legislation during the year was the adoption by New York State of an ordinance controlling the sale and use of fireworks. This legislation was similar in character to legislation adopted in previous years in New Jersey, Pennsylvania, and several other states.

One of the most serious fire disasters of recent times occurred in April, 1940, in Natchez, Miss., when 207 negroes were burned to death in a dance hall in which practically all of the well known principles of fire protection were flagrantly violated. This fire brought public attention once more to the importance of more adequate protection of places of public assembly throughout the country.

FIRE PROTECTION BUREAUS

The National Board of Fire Underwriters has established an Advisory Board of Fire Protection in the offices of the Navy Department, Bureau of Yards and Docks, Washington, D.C. Surveys and reports, with recommendations, applying to naval shore establishments covering fire protection in its various phases, consultation on water supply and water distribution systems, suggestions for safeguarding the fire hazards in building construction and advising in relation to automatic sprinkler protection, fire alarm systems and industrial hazards will be included in the technical service of the National Board. Engineers connected with the New York office of the National Board, are located in the Bureau of Yards and Docks in the Navy Department in Washington. The field work will be carried out by fire protection engineers of the various boards and bureaus in which the 200 companies comprising the National Board of Fire Underwriters are affiliated.

The creation of these Fire Protection Bureaus in the War and Navy Departments is in accordance with recommendations adopted by the Executive Committee of the National Board of Fire Underwriters in September 1939, and unanimously reaffirmed by the members last May, when it offered its services to the United States Government in the National Defense Emergency.

On October 10, it was announced that a War Department Bureau of Fire protection had been created by the National Board, at the invitation of the Construction Division of the War Department. That office now is being operated in Washington by three engineers who are assisted by more than 50 engineers of affiliated insurance organizations throughout the country.

The strengthening of the line of defense against fires is so vitally important, the International Association of Fire Chiefs went on record strongly urging the adoption of the necessary means to put into immediate effect the building-up of all fire departments and declared it to be a well-known fact that the existing manpower, fire-fighting equipment and signalling systems of the Fire Departments of the country are woefully inadequate, and it is essential that steps be taken to bring these services up to full strength to meet any emergency.

THREE-PLATOON SYSTEM IN NEW YORK

In 1936, the voters of New York City decided on the transfer of their fire fighting forces from a two platoon to a three platoon system. Despite a budgetary cut which upset all the original calculations, this transfer was accomplished in the stipulated time of three years. The Fire Department reports on the details of this achievement in a 239-page account prepared by its own members, entitled *The Evolution of the City of New York Fire Department from Two Platoon System to Three Platoon System, 1937-1938-1939.* The magnitude of the personnel problem is indicated by one single stage in the process—the changes in schedules involved in the reassignment of 6,800 workers while, at the same time, adding 4,000 new firemen to the staff. Statistical tables describe the actual operations: the original distribution of personnel, calculations to determine the personnel of the department under the three platoon system, the changes in estimates necessitated by the July 1, 1939, budget cut, the details of installation, the method of operation under the three platoon system and figures on the total costs of installation.

HANDBILL DISTRIBUTION

Ordinances limiting or prohibiting the distribution of handbills and circulars have recently been upheld in courts of three states. An ordinance of Milwaukee providing that it shall be "unlawful for any person to circulate or distribute any circulars, handbills, cards, posters, dodgers, or other printed or advertising matter in or upon any sidewalks, streets, or alleys" was held valid by the Supreme Court of Wisconsin. Distinguishing the recent case of *Lovell v. City of Griffin,* in which the United States Supreme Court held invalid an ordinance prohibiting distribution of handbills, the Court pointed out that no question of religion was involved here as in the Griffin case, and declared that the purpose of the ordinance in the instant case was to prevent littering of the streets, a purpose that even the Griffin case recognized as valid.

Similar distinctions were made in decisions handed down by the California Supreme Court in the case of *People v. Kim Young,* dealing with the validity of a Los Angeles handbill ordinance and by the Massachusetts Supreme Judicial Court in the case of *Massachusetts v. Nichols.* In both cases the ordinance restricted the distribution of handbills in public streets and ways and was held a justified means of preventing littering. Said the California Court: "The distinction between the Griffin city ordinance and the Los Angeles code is that the former prohibited the distribution of handbills and cards anywhere in the city, while the latter prohibits their distribution only in a very limited number of places which cannot be said to be wholly unconnected with the public welfare."

HOSPITALIZATION

Two hundred and sixty-five cities in the United States own and operate 322 hospitals which are registered by the American Medical Association. Fifty-four of these hospitals are owned jointly by cities and counties. Nearly all of the hospitals for the cities over 100,000 are approved by the American College of Surgeons, but only five out of the 60 hospitals in cities under 5,000 population are approved. Seventy-one hospitals were established prior to 1900, and 42 have been established since 1930. Of these 322 hospitals, 248 are general hospitals, 38 tuberculosis, 14 isolation, and the others of various special types.

PARI-MUTUEL BETTING

Legalized in 1939 by constitutional amendment, implemented by legislation adopted by the 1940 legislature early this year, pari-mutuel betting has now passed the $1,000,000-mark in revenues to New York State revenues. The spring racing season opened April 15 at Jamaica, and in the succeeding five and a half weeks betters placed nearly $20,000,000 across the cashiers' windows, of which the state's share through May was $1,068,276. Governor Lehman had estimated for the legislature $1,000,000 would be received from this source in the current fiscal year, or before July 1.

MUNICIPAL CONFERENCES

Among the important annual conferences for municipal officials held during 1940, were: International City Managers' Association at Colorado Springs, Col., Sept. 23-26; American Institute of Park Executives, at Cleveland, O., Sept. 24-27; American Public Works Association, Detroit, Sept. 30-Oct. 2; The Civil Service Assembly of the United States and Canada at Cleveland, Sept. 30-Oct. 4; The National Recreation Association at Cleveland, Sept. 30-Oct. 4; American Public Health Association at Detroit, Oct. 8-11; The American Municipal Association at Chicago, Nov. 13-15.

PERIODICAL PUBLICATIONS

American City
470 Fourth Ave., New York City.

Insured Mortgage Portfolio
Federal Housing Administration, Washington, D.C.

Municipal Finance
1313 East 60th Street, Chicago.

Municipal Sanitation
24 West 40th Street, New York City.

National Municipal Review
309 East 34th Street, New York City.

Public Management
1313 East 60th Street, Chicago.

Public Works
310 East 45th Street, New York City.

Sewage Works Journal
654 Madison Ave., New York City.

Water Works and Sewerage
330 S. Wells Street, Chicago.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN CIVIC ASSN., 901 Union Trust Bldg., Washington, D.C.

AMERICAN LEGISLATORS' ASSN., 1313 E. 60th St., Chicago, Ill.

AMERICAN MUNICIPAL ASSN., 1313 E. 60th St., Chicago, Ill.

AMERICAN PUBLIC WORKS ASSN., 850 East 58th Street, Chicago.

GOVERNMENTAL RESEARCH ASSN., 1313 East 60th St., Chicago, Ill.

INSTITUTE OF PUBLIC ADMINISTRATION, 261 Broadway, New York City.

INTERNATIONAL CITY MANAGERS' ASSN., 1313 E. 60th St., Chicago, Ill.

NATIONAL CIVIC FEDERATION, 45 East 34th Street, New York City.

NATIONAL CIVIL SERVICE REFORM LEAGUE, 521 Fifth Ave., New York City.

NATIONAL MUNICIPAL LEAGUE, 299 Broadway, New York City.

UNITED STATES CONFERENCE OF MAYORS, 730 Jackson Pl., N.W., Washington, D.C.

DIVISION VI

TERRITORIES AND SPHERES OF AMERICAN INFLUENCE

ALASKA

By Ernest Gruening

Governor of the Territory of Alaska

NATIONAL DEFENSE

The most important developments during the year ended June 30, 1940 related to national defense. Work has begun on an important navy air base at Kodiak Island, and on an army air training station at Fairbanks. Likewise preparations were under way for construction of a naval base at Sitka and for a great air base at Anchorage.

FOREIGN TRADE

During the fiscal year ended June 30, 1940 commerce between Alaska and the United States decreased $8,893,947, while the value of shipments from the States to Alaska decreased $932,678. The balance of trade in favor of Alaska was $19,418,749, a decrease of $7,961,269 from the previous year, when trade was somewhat bolstered by large shipments of equipment to Alaska for use in new mining ventures. However, increased activity again prevailed throughout the gold mining industry. While shipments of fish products, mainly canned salmon, to the United States decreased $785,431 from the previous year, the yield was normal, aggregating in value $43,602,813, the reduction in value being due to a lowered market value of these commodities. Shipments of fur skins to the States totalled $2,844,262, an increase of $244,833 from the previous year. Shipments of gold amounted to $20,951,797, an increase of $1,504,788 compared with 1939. Tourist travel continued to increase, and during the summer all ships plying Alaska waters carried capacity loads.

FINANCES

Cash on hand in the territorial treasury Jan. 1, 1940 amounted to $656,685.82 as compared with $877,112.82 the previous year. The combined resources of territorial and national banks at the close of business June 30, 1940 were approximately as follows: capital $910,000, surplus and undivided profits $1,250,339.36, deposits $17,148,552.26. Totals for the previous year were: capital $825,000, surplus and undivided profits $1,176,188.83, deposits $16,580,560.40.

FISHERIES

The total value of the Alaska fishery products in 1939 was $40,104,493, a decrease of $2,765,233 from the preceding year which in turn had shown a decrease of $8,873,494 from the year 1937, a drop in two years of $11,638,727. While the volume of salmon products increased in 1939 over 1938 the value decreased due to a lowered market. Halibut, cod, and clam products increased slightly both in volume and value. Shrimps decreased in volume with a slight increase in value. Crab, herring, and whale products showed decrease both in quantity and value due to closing of several production plants. The total number of salmon of all kinds taken in 1939 was 79,220,420 as against 103,022,897 in

1938. The number of cases packed was 5,263,153, valued at $34,441,082, as compared with 6,806,998 cases valued at $36,636,897 in 1937.

Canneries operating numbered 109, or 11 more than in 1938, and the number of persons employed increased from 22,280 to 24,921. Only 21 herring plants operated, being four more than in the preceding year, and the number of employees increased from 940 to 1,060. The total value of these products was $2,090,473 as compared with $2,053,084 in 1938. The halibut industry employed 710 persons as compared with 725 in 1938. The value of halibut landings at Alaskan ports totaled $890,301 as compared with $499,472 in 1938. Only one whaling station operated in 1939, employing 109 persons; 171 whales were taken, the total value of products being $136,941 as compared with $179,641 in 1938 when 173 whales were taken.

FURS

A total of 60,473 fur-seal skins were taken in the Pribilof Islands operations in 1939, an increase of 2,109 over 1938 which recorded an increase of 3,184 over 1937. Killings were from surplus three-year-old male seals. Computations as of Aug. 10, 1939 showed 2,020,774 seals of all ages and classes in the Pribilof Islands herd, an increase of 148,336 over 1938, which had shown an increase of 33,319 over 1937. This herd has steadily increased since 1910 when there were but 132,000 seals. During the fiscal year ended June 30, 1939, two public auction sales of fur-seal skins were held by the Fouke Fur Co. at St. Louis, during which 50,513 skins were disposed of.

Gross receipts from these sales, together with an additional 744 skins sold at special sales, were $1,066,250.14. There were also sold 1,018 blue fox skins for $16,001 and 11 white fox skins for $143. In the 1939-40 season 1,246 blue and 12 white fox skins were taken on the two islands.

MINERALS

The total value of mineral products in Alaska since 1880, when records were first kept, to the end of 1939 was $803,114,000. Of this total nearly 66 per cent has been furnished by gold lodes and placers and about 19 per cent by copper lodes. The peak year was 1916 with a total value of $50,900,000. Alaska mines produced $25,296,000 worth of minerals in 1939 as compared with $28,607,000 in 1938. In 1939 the output of gold from both lode and placer mines was $23,279,000 an increase of $129,000 over 1938. About 71 per cent of this output came from lodes in southeastern Alaska. The production of all platinum metals in 1939 was 27,230 ounces valued at $997,000 as compared with 34,420 ounces worth $1,229,300 in 1937, placing Alaska well upon the list of countries producing these metals.

Tin ore deposits in Alaska, mainly in Seward Peninsula, yielded, in 1939, 74,000 pounds worth $37,300, compared with 210,640 pounds worth $89,100 in 1938. Coal to the value of $585,000 was produced in 1939 from Alaska mines, principally the Matanuska and Healy River fields. In quantity, the output was 146,250 tons which is the largest amount of coal produced by Alaska mines in any year. In addition 18,173 tons of coal were imported, indicating a domestic consumption for the year of about 172,600.

ALASKA RAILROAD

The number of rail-line passengers carried was 29,510, an increase of 2,074 from the previous year. Rail-line freight traffic amounted to 194,467 tons, an increase of 36,563 from 1938. Of the total freight 113,980 tons consisted of coal. Emergency Relief allotments, totaling $232,762 during the year, gave employment to many relief laborers while improving the rail line.

AVIATION

With rapid strides, commercial aviation is becoming one of the major factors in the industrial life of Alaska. From one experimental air mail contract 15 years ago it has developed into the present 175 modern planes serving nearly all Alaska. The number of planes increased 20 over the preceding year. The number of passengers during the fiscal year ended June 30, 1940 totaled 3,598,790; passenger miles flown, 5,745,804; mail carried 4,315,892 lbs.

EDUCATION

The territorial public schools in Alaska for the education of white and mixed-blood children, including both elementary and high schools, are under general supervision of a territorial board of education, with the Commissioner of Education as executive officer. Schools are supported largely by territorial appropriations, augmented for rural schools by 25 per cent of the Alaska Fund which is derived from a variety of Federal taxes collected in the territory, and for schools within incorporated towns, by local taxation to an extent of 20 to 30 per cent of their operating costs. Four-year high schools, accredited by the Northwest Association of Secondary and Higher Schools, are maintained at Anchorage, Cordova, Douglas, Fairbanks, Juneau, Ketchikan, Nome, Petersburg, Seward, Sitka, Skagway, and Wrangell, as well as the rural high school at Palmer and the Sheldon Jackson School at Sitka. Non-accredited high schools are maintained at Haines and Nenana.

Graduation from a three-year standard normal school or its equivalent is a prerequisite for the Alaska elementary teacher's certificate. High school teachers must be graduates of standard four-year colleges and have completed a minimum of 15 semester-hours in education. At the 18th annual commencement of the University of Alaska, 35 degrees were conferred covering courses in: agriculture, civil engineering, education, history and political science, English, secretarial training, commercial education and metallurgic engineering, general science, home economics, and mining engineering. In addition to an enrollment of 268 regular students for the year, 1,020 enrolled in short courses. Agricultural Experiment Stations are maintained at the University and in Matanuska Valley and at Petersburg where an Experimental Fur Farm has recently been established.

An Extension Service serves the territory with five workers. In addition, the Office of Indian Affairs maintained two vocational high schools and 115 elementary schools, which serve also as community centers, for the Indians and Eskimos. Programs of study for the schools vary greatly, being based upon the needs and abilities of the individual communities and the extent to which white culture has been adopted. Regular teachers of this office are subject to the Civil Service rules and regulations. Minimum qualifications require graduation from a three-year teacher's training school or a university bachelor's degree, and two years' experience. Increased development of native arts and crafts is an integral part of the program. A total of 154 teachers with 58 Indian apprentice assistants taught 6,267 pupils during 1939-1940.

REINDEER

In the last year Congress appropriated $795,000 for the purchase of reindeer belonging to whites, so that the reindeer industry originally conceived and established as a means of aid and subsistence to the eskimos should be restored to them. The official designated to do the purchasing discovered that there were fewer reindeer in the possession of white owners than had been anticipated. Accordingly, only $333,003 was expended for the purchase of 84,000 deer and $112,925 for the purchase of cold storages, abattoirs, range cabins, fences, etc. The balance, $303,397, was returned to the U.S. Treasury.

The reindeer industry, which is closely linked with the Eskimos' educational and community life, is administered by the Office of Indian Affairs, whose teachers act also as local reindeer superintendents at the 40 established reindeer stations. It is estimated there are 250,000 reindeer in Alaska. The government markets reindeer carcasses only in Alaska.

Alaska's Indian Office principal vessel, the *North Star,* whose function it is to carry freight and passengers from Seattle to minor Alaskan ports, was detached during the fall, winter, and spring of 1939-40 to carry the major portion of the personnel and supplies for the United States Government's Antarctic Expedition. The *North Star,* being constructed for ice-breaking, was ideally suited for this undertaking and proved invaluable in Uncle Sam's exploration in the uncharted seas of the world's "farthest South."

HAWAII

By Joseph B. Poindexter

Governor of the Territory of Hawaii

GOVERNMENT

Of the 21 islands in the Hawaiian archipelago, eight are inhabited. During the greater part of the last century the islands formed an independent kingdom, but in 1893 the reigning Queen, Liliuokalani, was deposed and a provisional form of government set up. In 1894 a republic was proclaimed. Pursuant to the request and "consent" of the people of Hawaii, expressed through the Senate of the Republic in a resolution adopted Sept. 9, 1897, and the Newlands' Joint Resolution of the United States Congress, approved July 7, 1898, the Islands were annexed, and sovereignty of the Republic of Hawaii was transferred formally to the United States on Aug. 12, 1898. The Organic Act under which Hawaii is governed was approved April 30, 1900, since when the Hawaiian Islands have been functioning as an organized incorporated territory and an integral part of the United States.

Thus April 30, 1940 marked the 40th "birthday" of Hawaii as a territory of the United States. The calendar year 1940 also was noteworthy in three other respects. It marked the centennial of the institution of constitutional government in the archipelago, as well as the centennial of the establishment of the present public school system. On Oct. 8, 1840, King Kamehameha III proclaimed the first constitution which abolished, among other things, the "life-and-death" prerogatives of the absolute monarchy, and provided for the first participation of the common people in the government through popular election of the members of a lower house of the legislature. As a corollary to this first constitution, King Kamehameha approved on Oct. 15, 1840 the first laws providing for public education in the Islands.

On Nov. 5, 1940, as the result of a recommendation by the Joint Congressional Committee on Hawaii and the passage of an act by the 1939 territorial legislature, the electorate of Hawaii voted, in a special plebiscite, on the question: "Do You Favor Statehood For Hawaii?" The official results of that plebiscite were: for statehood, 46,174; against statehood, 22,428. This plebiscite culminated a movement for the "promotion" of Hawaii from a territory to a state, which had been initiated in 1903 by the adoption of a joint resolution seeking statehood in the legislature of that year, the second to meet under the then new territory.

Executive power in the territory is vested in the Governor, appointed by the President by and with the advice and consent of the United States Senate. Under the Organic Act the Governor must have resided in Hawaii for at least three years immediately preceding appointment. The Secretary of Hawaii, who becomes Acting Governor during the illness or in the absence of the Governor from the territory, also is appointed by the President by and with the advice and consent of the Senate. The Legislature consists of a Senate of 15 members elected for four-year terms, and a

House of Representatives of 30 members elected for two-year terms.

Hawaii is represented in Congress by a delegate, elected biennially. He has the right to introduce bills and has the privilege of the floor in both the House and committees, but has no vote in either.

AREA AND POPULATION

For administrative purposes the territory is divided into the following five counties: City and County of Honolulu, comprising the Island of Oahu (area 604 sq. M., estimated population 1940, 260,885); County of Hawaii, comprising the Island of Hawaii (area 4,030 sq. M., population 73,563); County of Maui, comprising the Islands of Maui (728 sq. M.), Lanai (141 sq. M.), Kahoolawe (45 sq. M.) and all of Molokai (247 sq. M.) except the leper settlement at Kalawao (total area Maui 1161 sq. M., population 55,785); County of Kauai, comprising the Islands of Kauai (area 555 sq. M.) and Niihau (area 72 sq. M.), (total area Kauai County 627 sq. M., population 35,956); County of Kalawao, administered by the Board of Hospitals and Settlement (area 13 sq. M., population 465). Total area is 6,435 sq. M., and the total population 426,654. The principal cities are Honolulu, the capital, situated on the Island of Oahu, population 180,986, and Hilo, on the Island of Hawaii, 16,641.

There follows a table representing the annual population estimates by racial origin groups of the Bureau of Vital Statistics of the Territorial Board of Health as of June 30, 1940, based upon the 1940 Federal census compilations as of April 1. The Federal statistics have not yet been broken down by racial origins.

Racial Origin	1940 Total Population	% of Whole	Citizens	Per Cent	Non-Citizens	Per Cent
Japanese..........	156,849	36.76	122,188	77.90	34,661	22.10
Hawaiian and Part Hawaiian.......	65,291	15.31	65,291	100.00	.....	....
Caucasian.........	115,836	27.15	113,349	97.85	2,487	2.15
Filipino...........	52,148	12.22	17,657	33.86	34,491	66.14
Chinese...........	28,809	6.75	25,032	86.89	3,777	13.11
Korean...........	6,761	1.58	4,555	67.37	2,206	32.63
All Others.........	960	.23	878	91.46	82	8.54
Total.......	426,654	100.00	348,950	81.79	77,704	18.21

The changes that have taken place in the racial origin groups of the population of Hawaii during the decade 1930-1940 are shown in the following comparative table:

Racial Origin	1930 Census	% of Whole	1940 Estimate	% of Whole	Increase	Per Cent Increase
Japanese..........	139,631	37.91	156,849	36.76	17,218	1.15*
Hawaiian.........	22,636	6.15	21,063	4.94	1,573*	1.21*
Part Hawaiian.....	28,224	7.67	44,228	10.37	16,004	2.70
Caucasian.........	80,373	21.82	115,836	27.15	35,463	5.33
Filipino...........	63,052	17.11	52,148	12.22	10,904*	4.89*
Chinese...........	27,179	7.38	28,809	6.75	1,630	.63*
Korean...........	6,461	1.75	6,761	1.58	300	.17*
All Others.........	780	.21	960	.23	180	.02
Total.......	368,336	100.00	426,654	100.00	58,318	....

* Decrease.

COMMERCE

Hawaii's commerce during the calendar year 1939 was valued at $224,392,286, an increase of $16,827,581 over the $207,564,706 aggregate for 1938. Shipments from the mainland United States to Hawaii were worth $101,817,230, while $113,206,898 represented shipments to the mainland from the territory. Imports from foreign countries stood at $7,479,248; exports to foreign countries from Hawaii were worth $1,888,911. Thus, with total shipments from the territory at $115,095,809, and $109,296,478 worth of purchases by Hawaii on the mainland and in foreign countries, the territory's balance of trade was again favorable by $5,799,331.

Principal items shipped to the mainland during the year were sugar, raw and refined, $55,217,960; canned pineapples, $34,098,779; pineapple juice, $16,723,754; molasses, $651,508; canned fish, $728,196; Kona coffee, $288,838. Exports of Kona coffee to foreign countries were $388,174.

SUGAR

Benefit payments on sugar produced in Hawaii in the fiscal year 1940 totalled $8,975,614 to 2,068 growers. This represented an increase of $381,614 over the payments made in the 1939 fiscal period. The Agricultural Adjustment Administration office reported that the mainland marketing quota for Hawaiian sugar for 1940 was 938,037 tons, raw value, while 30,869 tons may be sold locally.

PINEAPPLES

The movement of canned pineapples and pineapple juice from Hawaii to the mainland United States in the pack year ended May 31, 1940 was substantially larger than the totals for either of the 1938 or 1939 pack years.

The Pineapple Producers Cooperative Association, spokesman for the industry, reported that: "The continued high level of operations in the pineapple fields and canneries has been of material assistance in maintaining employment in the Islands. Wages are at fair levels, and working conditions are excellent. The industry continued to exhibit the relative stability of the past, with results beneficial to producers, workers, sales agencies and consumers, and to the general economy of the Territory. However, the importation of foreign canned pineapple in increasing amounts represents a threat to this stability. Receipts of canned pineapple in the United States from foreign sources were far larger in 1939 than in any preceding year. The following figures compare imports by leading countries of origin for each of the past seven calendar years (the data, obtained from the Bureau of Foreign and Domestic Commerce, have been converted from pounds to cases of 45 pounds each):

Country of Origin	1933	1934	1935	1936	1937	1938	1939
Japan	3,538	34,265	70,863	154,941	102,564	9,932	359,764
Cuba	45,354	35,795	38,588	49,783	157,363	146,592	272,867
British Malaya	21,648	19,737	28,068	51,168	153,135	66,430	39,237
All Others	146	903	1,349	4,439	3,349	788	1,240
Total	70,686	90,700	138,868	260,331	416,411	223,742	673,108

FINANCES

The Territorial general fund, on the basis of its position on June 30, 1940, faced a theoretical prospective deficit of $191,468.92 at the end of the biennium on June 30, 1941, but this was more than offset by a reserve of $535,178.11, classed as "Governor's unapproved excess appropriation," and, with tax receipts well in advance of estimates, it seems certain that this fund would have an appreciable surplus at the end of the biennium.

Total resources of this fund as of June 30, 1940, were placed at $6,657,767.38, consisting of cash on hand and in banks, $3,155,529.18; current taxes due but uncollected, $2,537,862.87; due from other funds, $75,000; accounts and advances receivable, $889,040.94; and notes receivable, $334.49. From these $6,657,767.38 total assets were subtracted current immediate demands against cash of $199,234.44; reserves of $3,613,127.44 for various purposes; $185,889.24 advance collections applicable to the ensuing biennium, 1941-1943, leaving total current surplus at $2,845,405.50.

The general fund began the 1939-1940 fiscal period with available cash of $2,415,007.87, with total receipts of $16,158,300.79 during the year, or total assets of $18,573,308.66. Against this, total payments of $15.617,013.92 were made, leaving the available cash at the close of the year at $2,956,294.74.

In the general fund the sources of revenue receipts making up $16,158,300.79 were:

Taxes, special assessment and special charges, fines, forfeits, and escheats	$12,194,829.28
Subventions and grants, donations and pension assessments	174,241.96
Rents of investment properties, and interest	1,262,226.35
Earnings of general departments and public service enterprises from fees, charges, rents, and sales	1,040,863.55
Non-revenue receipts	626,869.84
Transfer receipts	859,269.81

Under the heading "Governmental Costs", the Territorial government expended from the general fund during the fiscal year the sum of $15,617,013.92, composed of the following amounts:

General government	$ 966,946.92
Protection to person and property	432,886.45
Conservation of health and sanitation	1,404,589.24
Development and conservation of natural resources	319,285.42
Highways	18,239.55
Charities, hospitals and corrections	1,121,322.77
Recreation	22,216.15
Education	6,824,616.93
Miscellaneous	205,026.30
Public service enterprises	445,277.45
Non-governmental costs	18,890.40
Transfer payments	3,837,716.34

Total deposits in the seven banks in Hawaii on June 30 amounted to $123,296,267.74, as compared with $111,361,392.32 on June 30, 1939, an increase of $11,934,875.42, or 9.7 per cent.

Outstanding bonds of the territory on June 30 amounted to $38,288,000, as compared with $39,046,000 on June 30, 1939. During the year, a total of $2,408,000 in bonds was redeemed by the territory, while $1,650,000 new bonds were issued, consisting of an issue of $150,000 on Sept. 1, 1939, and $1,500,000 on Nov. 1, 1939.

On June 30, 1940, there were 929 corporations in the territory with aggregate capitalization of $338.030,871. Of these, agricultural corporations led all the rest with a total of 88 companies and an aggregate capitalization of $167,518,500; while financial institutions numbering 217 had a total capitalization of $62,042,973; and public utilities, with 38, had an aggregate capitalization of $40,636,198.

Gross assessed value of real and personal property in 1940 was listed at $441,137,830, as compared with $425,203,298 in 1939, an increase of $15,934,532, or 3.747 per cent.

TOURIST TRADE

The tourist trade, referred to as Hawaii's "Third Industry", from the standpoint of revenue brought into the territory, enjoyed a banner year in the fiscal year 1940. In addition to 32,215 cabin passengers who spent one day in Honolulu *en route* to or from the Orient or the Antipodes, 25,007 tourist-visitors who spent at least two days in the Islands came to Hawaii. While the average tourist who visits Hawaii spends most of his time at the beaches, there are numerous other diversions such as golf, tennis, horseback riding, deep-sea fishing, hiking on scenic trails in the hills and even skiing during the winter months on the slopes of Maunakea (elevation 13,825 feet) on the island of Hawaii.

COMMERCIAL AVIATION

Honolulu is a port of call for the Clipper planes of the Pan-American airways on its weekly-schedule San Francisco-Hongkong route *via* Honolulu, Midway, Wake, Guam, Manila and Macao, and on its twice-monthly San Francisco-Auckland route, *via* Honolulu, Canton Island, Noumea, in New Caledonia. This latter route began regular commercial service Sept. 11, 1940. Fairly regular schedules have been maintained on these two services. Daily airplane service between the principal islands of the Hawaiian group is maintained by the Inter-Island Airways, operating six amphibian planes. During the fiscal year ended June 30, 1940, these six planes flew 428,840 miles and carried 26,482 passengers.

MOTOR AND RAIL TRAFFIC

There were 69,725 privately owned automobiles on June 30, 1940. This is approximately one to every six persons in the territory. Three railroad companies operating on 313 miles of track during the year carried 220,630 passengers and 1,481,923 tons of freight.

PUERTO RICO

By William D. Leahy

Governor of Puerto Rico

DESCRIPTION AND AREA

Puerto Rico is a mountainous island with an area of 3,406 square miles and a total population of about 1,800,000. It is bound on the north by the Atlantic and on the south by the Caribbean Sea. It was discovered by Christopher Columbus on his second voyage in 1493, and was settled by Don Juan Ponce de León who conquered the fierce Caribe tribes inhabiting the island. For the past 41 years—since the Spanish-American War—the island has been a possession of the United States. San Juan, the capital city, is approximately 1,400 miles from New York City and 963 nautical miles from Key West.

The island is continually cooled by tradewinds from the northeast and possesses what the San Juan Weather Bureau calls "one of the finest winter climates on our planet." The average winter temperature is 73° F. and the summer average 76°. In the mountains of the Central Cordillera the average temperature is 70°. Puerto Rico is considered the coolest region in the Caribbean tropics, with 90° the highest temperature ever recorded. The island is sometimes called "the tropical isle with the temperate clime." Puerto Rico is 100 miles long and 35 miles wide, and is latticed with a network of good roads. The common language of the island is Spanish but English is taught at all schools and is widely spoken and understood.

GOVERNMENT

Puerto Rico has been held by the United States Supreme Court to be unincorporated territory of the United States, a status differing from that of those territories which have been incorporated into the Union.

Puerto Rico is governed under the Act of Congress of March 2, 1917, known as the Organic Act, and subsequent amendments. Supreme executive power is vested in the Governor, who is appointed by the President of the United States by and with the advice and consent of the Senate of the United States, and holds office at the pleasure of the President. The act provides for seven departments—Justice, Finance, Interior, Education, Agriculture and Commerce, Labor, and Health. The Attorney General, who heads the Department of Justice, and the Commissioner of Education are similarly appointed by the President; the others are appointed by the Governor with the advice and consent of the insular Senate. The department heads collectively form a council to the Governor known as the Executive Council. The Auditor of Puerto Rico is also appointed by the President.

The island is represented in the United States by an elected Resident Commissioner, who has a seat in the United States House of Representatives, with the right to debate but not to vote. Local legislative powers are vested in a Senate and a House of Representatives chosen by the electorate of the island every four years.

The judiciary system consists of the Supreme Court, the District Court of the United States for Puerto Rico, the district and municipal courts, and justices of the peace. Appeals may be made in certain cases to appropriate higher courts, including the Supreme Court of the United States. The Chief Justice and four Associate Justices of the Supreme Court, the District Judge, District Attorney and Marshall of the District Court for Puerto Rico are appointed by the President. Statutory laws of the United States not locally inapplicable, except as otherwise provided, are in effect in Puerto Rico, except the internal revenue laws.

LEGISLATION

The fourth regular session of the Fourteenth Legislature convened on Feb. 12, 1940. Among 173 bills passed by the Legislature and approved by the Governor were the following: provision for the purchase of land for a National Guard camp; a bond issue for construction of National Guard armories; transfer by the Insular to the Federal Government of certain lands for purposes of national defense; amendment of laws controlling production and sale of coffee; transfer of lands from The People of Puerto Rico to the San Juan Housing Authority; an appropriation to be placed at the disposal of the Commissioner of Agriculture and Commerce to cooperate with laborers in promoting production of subsistence crops; the creation of an Advisory Parole and Pardon Board.

ELECTIONS

Regular four-year elections were held on Nov. 5, 1940, to select members of the Insular Senate and House of Representatives, Resident Commissioner at Washington, as well as mayors and assemblymen for 75 municipalities and a Board of Commissioners for San Juan. On the whole these elections were orderly and resulted in the control of the Senate by a new party, the Popular Democratic.

TOURIST PROMOTION

An excellent climate, unrivaled scenery, historic background, and old world atmosphere combine to make Puerto Rico a place of unusual charm and interest to the visitor. Until recent years, however, little had been done to publicize its attractions or to stimulate outside interest with a view to promoting tourist travel to the Island. To fill this long indicated need, the Insular Legislature created the Bureau of Tourism in 1937, and arrangements were subsequently made for widespread publicity and advertising campaigns in mainland newspapers and magazines. The result has been a substantial increase in the yearly number of visitors, intensified by the outbreak of the European war, which rendered travel to other heretofore popular resort areas uncertain or dangerous. The selection of the Island as an important strongpoint in the National Defense program, and the construction of large naval and army bases has also contributed materially towards increasing the interest of continental Americans in Puerto Rico.

ECONOMIC CONDITIONS

An increase was noted in 1940 in bank deposits, as well as in loans and investments by banks. Shipments to and from the mainland also increased. Building activities in the San Juan metropolitan area and elsewhere were given further stimulus by the establishment in Puerto Rico of a branch of the Federal Housing Administration, which commenced operations in July of 1939. The construction of army and navy bases provided employment for large numbers of workers, while the activities of Federal Agencies also did much towards solving the ever present unemployment problem. Business and commerce were active during the year. This condition has come about, however, chiefly as the result of temporary measures which do not constitute a solution of the Island's fundamental problems. The provisional figures of the 1940 census gave the population of Puerto Rico as 1,869,245, an increase of 325,332 during the last ten years. The few existing industries are inadequate to furnish employment to this dense population, while a virtual one-crop agriculture renders the Island dependent upon outside sources for most of its elementary food staples.

TRADE AND COMMERCE

During the fiscal year 1939-40 exports from Puerto Rico to the United States were valued at $90,902,156, as compared with $84,782,650 for the previous year. Exports from Puerto Rico to foreign countries were valued at $1,445,086. The value of shipments to Puerto Rico from the continental United States was $100,517,184. Shipments of fresh fruit from the Island amounted to $1,014,614, and canned fruit to $484,791. The value of shipments of needlework from the Island also increased during the year. The most notable increase, however, was in exports of rum from Puerto Rico, which during the fiscal year 1939-40 amounted to 1,137,235 gallons, having a value of $5,567,765, as compared to 700,613 gallons valued at $3,194,849 during the previous year.

FINANCE

A balance of $2,853,331.75 remained in the Insular Treasury when books were closed on June 30, 1940 for the fiscal year 1939-40. Collections for the fiscal year amounted to $16,973,179.56 which, added to the balance at the beginning of the year of $1,274,033.14, reflected a total of $18,247,212.70. Outgo amounted to $15,393,880.95. Against the balance were charged obligations assigned to next year's budget amounting to $1,409,192.55. The cash balance available in trust fund accounts at the end of the fiscal year amounted to $14,801,633.06. Outstanding bond obligations of the People of Puerto Rico at the close of the fiscal year amounted to $27,200,000. During the year, bonds were issued in the amount of $1,972,000, while total bonds redeemed during the period amounted to $987,000. On June 30, 1940, the municipal indebtedness, bonded and other, amounted to $19,130,218.81, an increase of $3,470,183.82 over the previous year.

The total assessed value of taxable real and personal property in Puerto Rico on June 30, 1940 amounted to $311,800,349, an increase of $2,859,545 over last year's figures. The total amount of property taxes levied during the year was $7,253,511.19, as against $6,968,186.52 for the previous year. At the end of the fiscal year there were 12 banks with 18 branches, and one trust company doing business in Puerto Rico. Aggregate deposits with banks amounted to $76,373,845.68 on June 30, 1940, as against $57,461,708.76 at the end of the previous fiscal year. Bank loans and investments totalled $37.174.610.22 at the end of the year, while cash on hand in banks amounted to $6,367,033.71.

DEFENSE

Puerto Rico is being made into the principal strongpoint of the main line of resistance of the Caribbean Sea and the Panama Canal. As the most southerly territory of the United States in the Atlantic Ocean, it is also the point from which operations conducted by both the Navy and Army for the defense of South America will originate. The defense program now under way in Puerto Rico will require the expenditure of approximately $53,000,000.

The Army is constructing two principal air bases, one at Borinquen Field on the northwestern tip of the Island for bombardment forces, and the other at Ponce in the south central area for pursuit forces. In addition to the two major bases, the Army is constructing ten auxiliary fields in Puerto Rico and the Virgin Islands. Military forces, in addition to those at the two air fields named, will be stationed at El Morro at San Juan; Fort Buchanan, near Bayamón; Henry Barracks at Cayey; and Camp Tortuguero near Vega Baja. The Military Department of Puerto Rico was established July 1, 1939. With the modifications caused by the European War, Puerto Rico is assuming an ever more important position in the defense plans of the United States.

On January 1, 1940 the area including Puerto Rico and the Virgin Islands was designated as the Tenth Naval District with Headquarters at San Juan. For the construction of a first class air station at San Juan and other necessary adjuncts an approximate sum of $13,000,000 has been appropriated. At St. Thomas work has been started on a submarine base. The Marine Corps has an aviation field on St. Thomas, and there is a secondary field on the island of Culebra.

AGRICULTURE

The basic sugar quota allotted to Puerto Rico during 1940 was 797,982 tons, a substantial reduction from the previous year's allowance of 806,642 tons. Sugar prices were also lower than during the previous year. Benefit payments of upwards of $10,000,000 partially compensated growers for the reduced quota and prices. Sugar exports during the year were valued at $57,328,790. The year's tobacco crop was substantially larger than that of the previous year, due largely to favorable weather conditions, while the average price per exported pound also increased. Exports of tobacco during the year amounted to 17,087,366 pounds, valued at $6,028,764.

The situation of coffee growers has been improved through the establishment of an Insular and Federal subsidy for stabilizing the price and eliminating excess stocks from the market. During the fiscal year, exports of coffee to the United States amounted to 1,049,723 pounds, valued at $103,333, while exports to foreign countries totalled 1,995,562 pounds valued at $265,998. During the year approximately 4,000 acres were planted to sea island cotton, which continues to be a crop of growing importance. The coconut industry received considerable stimulus by the establishment on the Island of two industrial plants for processing nuts.

The subsistence plan, granting lands to unemployed agricultural workers on which to grow their own food, was continued with notable success. Upwards of 24,000 acres of land are now devoted to this purpose and an annual appropriation of $30,000 was assigned by law in 1940 to further this activity. Agriculture in Puerto Rico has received cooperation and assistance of inestimable value from various Federal agencies, chiefly through granting of loans at nominal interest rates, benefit payments for crop restrictions, and promotion of improved and soil conserving agricultural practices.

HEALTH

As a result of the extension to Puerto Rico of certain phases of the Social Security Act, there was a considerable expansion of the Island's health program during the year. Fifty-two additional public health nurses, 17 graduate social workers, and 30 sanitary inspectors were added to the staff of the Insular Department of Health. Sixty additional pre-natal and infant hygiene clinics were opened in 19 municipalities. Nine dentists were added to the departmental staff, and mobile dental equipments were purchased in connection with an oral hygiene program conducted in rural communities. The year 1939 registered the lowest death rate (17.8 per 1,000) recorded on the Island since 1898, when vital statistics became available. Substantial reductions were also recorded in several of the Island's principal specific causes of death, notably tuberculosis and malaria. Satisfactory progress was made during the year in the provision of facilities for medical care and in the improvement of health conditions throughout the Island.

EDUCATION

In 1940 there were in Puerto Rico 1,773 public schools, of which 1,410 were elementary rural, 225 elementary urban, 87 second unit, 42 high and nine trade. There was a total enrollment in elementary and secondary public schools of 286,089, an increase of 4,739 over the 1939 figures, the highest heretofore recorded. Public and private schools granted a total of 13,299 eighth grade diplomas. Five hundred and fifty-nine school lunchrooms were organized, and 34,743 children were fed daily at a cost of $177,998. The teaching personnel numbered 6,294, of which 1,532 were males and 4,762 females. Particular attention was given in 1940 to the teaching of English and vocational and industrial subjects. A total of 4,987 students was enrolled in the University, which represents an increase of 10 per cent over the previous year. In 1940, the University granted 481 bachelor degrees and 360 diplomas.

LABOR CONDITIONS

Generally speaking, wages in Puerto Rico fluctuate around levels considerably below standards on the mainland. In most agricultural occupations hourly wages are slightly under ten cents, with the exception of those paid to sugar cane workers who average 15 cents per hour through the existing collective agreement regulating wages in the sugar industry. This agreement affords protection to approximately 120,000 workers. During 1940, agricultural wages varied from 6.2 cents per hour in the tobacco fields, to 15.1 cents in the sugar cane fields. Wage rates in industry and trades showed a tendency to rise, particularly among groups earning between 15 and 30 cents per hour. During the year 34.7 per cent of all industrial workers earned over 30 cents per hour, as against 14.8 per cent during the previous year. This is attributable to the effect of the Federal Wages and Hours Law on such industries as can afford to pay the wages prescribed by its provisions. An amendment to the law in behalf of Puerto Rico's needlework industry became effective in November, 1940, but it still remains to be seen whether or not this industry will continue to operate here, even under the modified wage scale.

THE PHILIPPINE ISLANDS

By Rupert Emerson

Director, Division of Territories and Island Possessions,
Department of the Interior

POLITICAL AND GOVERNMENTAL STATUS

The status of the Philippine Islands is that of an unincorporated territory of the United States. Under the program provided in the Independence Act of 1934, complete independence of the Islands will be established in

1946. The act specifically sets forth the general powers and authority reserved to the United States during the transitory period of the Philippine Commonwealth Government. The public debt may not exceed limits now or hereafter fixed by the Congress of the United States; trade relations with the United States continue to be governed exclusively by Congress; acts of the National Assembly affecting currency, coinage, imports, exports, and immigration do not become effective until approved by the President of the United States; foreign affairs remain under the direct supervision and control of the United States; all acts passed by the National Assembly must be reported to the Congress of the United States; decisions of the courts of the Commonwealth Government are subject to review by the Supreme Court of the United States; citizens and corporations of the United States enjoy in the Commonwealth of the Philippines all the civil rights of citizens and corporations of the Philippines. The United States reserves the right to maintain military and other reservations in the Islands until independence, and to occupy naval reservations and fueling stations after independence. There is also reserved to the United States the right to intervene under certain conditions set forth in the act. During the period of the Commonwealth Government, a United States High Commissioner "shall be the representative of the President of the United States in the Philippine Islands."

CITIZENSHIP

Citizens of the Philippine Islands owe allegiance to and are under the protection of the United States but are not citizens thereof. Those who have had honorable service of not less than three years in the United States Navy or Marine Corps or the Naval Auxiliary Service or Coast Guard may become citizens of the United States. For purposes of immigration the Philippine Islands are considered as a separate country, and the number of immigrants that may enter the United States therefrom for each fiscal year is limited to 50.

GOVERNMENT ORGANIZATION

President and Vice President.—Under the constitution drafted in accordance with the provisions of the Independence Act of 1934, the executive power was vested in the President of the Philippines elected by the Filipino people for a six-year term and ineligible for re-election. By an amendment to the constitution, approved by the President of the United States on Dec. 2, 1940, the term of the President and of the Vice-President was changed to four years with one re-election. The President controls all executive branches and has general supervision over local governments. He appoints all senior officers of the government and all minor officials not otherwise provided for. The President is commander-in-chief of the armed forces of the Philippines; in emergencies he may suspend the privileges of the writ of *habeas corpus* or place the Islands under martial law. He has power to grant reprieves and pardons and remit fines and forfeitures, after conviction, for all offenses, except in cases of impeachment.

Executive Departments. — There are eight executive departments. The Auditor-General is appointed by the President for a ten-year term and is not eligible for reappointment. The Philippine Resident Commissioner to the United States is appointed by the President of the Philippines.

Legislature.—Under the Philippine constitution, the legislative power was vested in a unicameral legislature called the National Assembly to meet every year in regular session for not more than 100 days. Special sessions are limited to 30 days. The membership apportioned on the basis of population is elected by popular vote every three years. Under the recent amendment to the Philippine constitution, the bicameral legislature was restored by revival of the senate to be composed of 24 members elected at large. Close control and supervision over the natural resources of the Islands is given to the Assembly. That body has power to legislate with reference to public lands, timber, and mining. Prior to 1935, legislation on these subjects required the approval of the President of the United States before becoming effective. Heads of departments may be heard before the Assembly. Veto provisions are similar to those in the United States Constitution, except that the President may veto specific items in appropriation, tariff, and revenue bills.

Judiciary.—The judicial branch of the Commonwealth government is composed of the Supreme Court, the Court of Appeals, Court of Industrial Relations, Courts of First Instance, justice of the peace courts, and municipal courts.

UNITED STATES HIGH COMMISSIONER

High Commissioner Francis B. Sayre took possession of his new residence-office in Manila Feb. 16, 1940. The enforcement of United States laws in the Philippines and matters affecting foreigners and foreign relations have been subjects of constant attention. During the current year, questions arising in connection with the neutrality laws, regulation of transactions in foreign exchange, control of the importation of securities into the Philippines, the evacuation of women and children from Hongkong, and other situations created by the European war assumed increasing importance in the work of his office.

LEGISLATION

The second regular session of the National Assembly was held from Jan. 22 to May 8, 1940. Several tax measures were enacted. Among the most important of the 87 bills passed were the immigration law, approval of amendments to the Philippine constitution and those declaring Tagalog the national language after July 4, 1946, and creating a Bureau of Immigration and a Department of Health and Welfare in the City of Manila. Provision was made for the creation of two new government enterprises—a National Coconut Corporation and a National Tobacco Corporation. The immigration law limited to 500 the number of quota immigrants permitted to enter the Philippines from any one country during any calendar year. It was approved by the President of the United States on Aug. 26, 1940, and went into effect on Jan. 1, 1941.

The fourth special session of the Assembly commenced July 8 and adjourned Aug. 10, 1940. Its initial purpose was to canvass the returns and to certify the results of the plebiscite which was held on June 18 to vote on three amendments to the Philippine constitution, that is, to change the tenure of office of the President and Vice-President to four years with one re-election, to establish a bicameral legislature through revival of an elective senate, and to create a Commission on Elections. The vote resulted in approval of the amendments by a large majority. Several bills approved provided for a fundamental revision of the educational system. The most important of the 28 bills passed, however, were those granting to the President broad emergency powers considered necessary because of the present world conditions.

FINANCES

The fiscal year of the Government of the Commonwealth of the Philippines was changed by recent legislation from the period Jan. 1 to Dec. 31 of the calendar year to the period from July 1 of each calendar year to June 30 of the calendar year immediately following. This change became effective on July 1, 1939.

On June 30, 1940, the finances of the Commonwealth government were in excellent condition. The public debt was small. The sinking funds for all outstanding indebtedness had been regularly provided for and segregated. The currency reserves were in excess of the legal requirements for the currency in circulation. Deposits of Philippine public funds in the United States amounted to $159,563,694.17.

During the fiscal year 1940, the total net receipts collected by the National Government amounted to $79,014,934.83, of which $14,700,470.27 represented coconut oil tax collections received from the United States Treasury Department. The total expenditures amounted to $91,808,136.68 which left a net deficit of $12,793,201.85. The invested surplus amounted to $149,755,393.98.

The bonded indebtedness of the Philippine Government on June 30, 1940, amounted to $54,714,000. Cash and investments in the sinking funds amounted to $17,230,599.71. Deducting this amount from the outstanding indebtedness leaves a net debt of $37,483,400.29.

However, it should be noted that a large part of the revenues of the Commonwealth Government is derived from the excise taxes collected in the United States and refunded to the Philippines specifically for use in preparing the Islands for the responsibilities of an independent nation. This matter of adjusting the country's economy to a position independent of free trade with the United States, as contemplated in the Independence Act, is the most serious problem confronting the government. High officials of the Commonwealth have publicly stated that it is practically impossible to accomplish this task during the five years remaining until 1946.

TRADE

The total external trade of the Philippines with the United States and foreign countries during the calendar year 1939 amounted to $243,993,862, a decline of $4,408,963, or 2 per cent under that of 1938. Exports (not including $36,836,568 of gold and silver) were valued at $121,226,134, increasing $5,430,857, or 5 per cent; while imports, amounting to $122,767,728, were 7 per cent lower. For the second consecutive year there was an unfavorable balance in commodity trade amounting to $1,541,594 (not including gold and silver) against the Philippines. Gold production was 16 per cent greater than in 1938.

Trade with the United States totaled $175,559,379 (exclusive of gold and silver), a decrease of 2 per cent, and made up 72 per cent of the total external trade. Purchases from the United States were valued at $83,427,853 and represented 68 per cent of the total imports into the Islands, the same percentage as in 1938. Exports to the United States were valued at $92,131,525, representing 76 per cent of the total exports as compared with 77 per cent in 1938.

Sugar shipments, practically all of which came to the United States, amounted to 41 per cent of the total export trade and aggregated 860,904 long tons valued at $49,673,470 as compared with the previous year's total of 854,535 long tons valued at $50,022,024. Coconut oil, nearly all being shipped to the United States, reached a total of 165,052 long tons valued at $9,171,104 as compared with the previous year's total of 163,006 long tons valued at $10,766,455.

Reports on external trade for the six-month period January-June, 1940, following the close of the last previous calendar year, indicate an unfavorable balance against the Islands. The import trade showed a substantial increase while exports decreased. The European war affected Philippine trade with those countries, and business with the United States was seriously hampered during that period by the scarcity of shipping, high freight and insurance rates, and general uncertainty.

EDUCATION

Since the inauguration of the Commonwealth, enrollment in the Philippine public schools has increased by more than 600,000. Educational opportunities were further extended in 1939. The annual enrollment in March of that year was 1,746,452, the largest in the history of the Philippines, and still more than half the children of school age were out of school. The schools numbered 10,949, and the teachers, 38,243, only 80 of whom were Americans. Enrollment in private educational institutions numbered 137,187. Literacy for the entire population ten years of age or over was 48.8 per cent, based on ability to read and write in any language. The Tagalog dialect, the basis for a national language, is taught in the public schools as a compulsory subject, but English is still the medium of instruction. The total percentage of government expenditures for school purposes remained at about 20 per cent.

GENERAL CONDITIONS

General conditions during 1939 and up to June 30, 1940 were excellent. Law and order prevailed generally, but there was labor unrest growing out of disputes between sugar factories and laborers and between landlords and tenants in the sugar- and rice-producing regions. These problems were most acute in the provinces near Manila to the northward—Pampanga, Bulacan, and Nueva Ecija. Health conditions were satisfactory. No case of cholera was reported, but, as in previous years, diarrhea and enteritis were prevalent. Special activities were undertaken for the control of the most serious diseases—tuberculosis and malaria. Bronchitis and broncho-pneumonia constituted a serious problem. There was a marked improvement in sanitary conditions in the provinces. Transportation facilities were improved and extended. The number of ships under Philippine registry engaged in overseas trade increased. A Department of National Defense was created on Nov. 1, 1939. On Dec. 31, 1939, there were in the regular Philippine army 363 officers and 3,735 men, and in the reserve, 4,829 officers and 104,412 men.

VIRGIN ISLANDS OF THE UNITED STATES

By Robert M. Lovett

Acting Governor of the Virgin Islands

GOVERNMENT

The Virgin Islands of the United States have a total area of approximately 132 sq. mi. The population on April 1, 1940 was 24,880. There are about 50 islands in the group, five of which are inhabited. They were purchased from Denmark in 1917 for $25,000,000. Until 1931 they were under the jurisdiction of the Navy Department. In March of that year they were transferred to the jurisdiction of the Interior Department. On June 22, 1936 Congress passed an Organic Act for these Islands, giving a larger measure of self government to the two Municipal Councils of the Islands and creating a Legislative Assembly for the group.

ECONOMIC SITUATION

In the last 20 years the value of exports from the Virgin Islands has in only one year been greater than the value of imports. In the past ten years the adverse trade balance has been at an annual average figure of $1,594,253. The continued adverse balance is, however, offset by the expenditure of Federal funds, by ships servicing charges, and by tourist expenditures. The first of these is the most important. Sugar, rum, bitters and cattle are the chief articles produced for export. Coal and oil are sold for export as ships' bunkers, as this constitutes a service activity involving the resale of imported products.

HOMESTEADING

Preliminary figures of the 1940 census record an increase in the number of farms in the Virgin Islands from 329 in 1930 to 828 in 1940, an increase of 152 per cent. This change is attributable almost entirely to the establishment of a so-called homestead program inaugurated in 1931 and later considerably expanded.

To date, a total of 3,552 acres have been purchased in the islands of St. Croix and St. Thomas for subdivision, which are now being sold under rental-purchase contracts to 328 small holders. The sale price of this land is being amortized in 20 annual payments. These payments are lower than the annual rents previously paid by tenants. In addition, 77 families have been established on small holdings set up by the Municipality of St. Croix. These municipal homesteaders have been given substantial assistance by the agency directing the Federal Homestead Program. Ninety-one houses have been constructed or reconstructed on these areas which are likewise being sold under purchase contracts to their occupants. These are modern two- three- and four-room houses located on the homestead plots or near them.

TOURIST TRADE

At the beginning of the fiscal year 1940, it was anticipated that the high record of calls by cruise ships at St. Thomas in 1939, when 24 ships brought 11,715 cruise passengers to the island, would be exceeded in the new fiscal year. At that time, 43 cruise ship calls were scheduled for the fiscal year 1940. Eleven of these were made prior to the outbreak of the war. Because of the outbreak of war, however, only 21 cruise ships, bringing a total of 8,369 passengers, visited the port. This reduction affected many businesses and individuals catering to the tourist trade, which is an increasingly important economic factor in St. Thomas.

CIVILIAN CONSERVATION CORPS

The C.C.C. Camps in each Municipality have continued to provide work opportunities, training, and discipline for 300 youths. These camps are especially valuable in the Virgin Islands where loose family ties are often accompanied by the complete absence of parental discipline. Many boys, former enrollees, have found employment in trades which they learned while in camp. Among other important projects the C.C.C. has undertaken the development of a number of recreational facilities hitherto almost non-existent.

ROADS AND STREETS

The most important roads in the Islands have been hard-surfaced and many additional miles have been improved. The principal streets in all towns and many other streets have been surfaced.

SANITATION

Fourteen miles of street drains have been installed or permanently repaired and 8.7 miles of salt water lines have been laid, which are available for sanitary flushing. Of these 6.7 miles have been laid since 1933. A total of 8.9 miles of sewer line have been laid, and 5.4 miles have been laid since 1933. All public buildings in the town and especially the public schools have been provided with sanitary flushing toilets.

CATTLE TICK ERADICATION

The cattle tick eradication program has been carried forward successfully since its inception. Since January 1940, the Islands of St. Thomas and St. John have been reported to be free of cattle ticks. Importation into Puerto Rico of animals for other than slaughter purposes has been authorized since April 1, from these islands. The program has also been carried on in the Island of St. Croix but because of the existence of deer, wild donkeys, and other tick infested wild animals, which must be eliminated, that Island must continue dipping for an additional 12 months. The completion of tick eradication work will remove a serious obstacle to the sound development and extension of the cattle business.

WOMEN'S PROJECTS

A mattress-making project operated for 38 weeks, employed an average of

54 workers (11 males and 43 females), and produced 1,031 mattresses. The Food Surplus Commodities Corporation furnished during the year 35,708 pounds of cotton and 13,260 yards of ticking. During the year 1,022 mattresses were distributed to needy families (719 in St. Thomas, 78 in St. John and 225 in St. Croix). A sewing project operated for 38 weeks, employed an average of 37 workers, all female, and produced 9,889 garments. Of the total items produced (including clothing for men, women and children, sheets, pillow cases, etc.), 2,702 were distributed in St. Thomas and St. John during the year.

DEMONSTRATION NURSERY SCHOOLS

Introduced in 1934 and reestablished in 1938, Nursery Schools have increased in number and have been operated continuously during the past two school years.

COOPERATIVES

The handicraft cooperative, begun in 1931 with the aid of a loan made by the local government, has increased its sales from $5,712 in 1932 to $45,394 in 1939. The cooperative is operated by a board of directors, some of whom are officers of the government. Because it has proved to be a means of bringing in a small additional cash income to the families of approximately 700 workers, allotments of relief funds have been made to provide for instruction in the production of handcraft articles and to pay supervisory personnel. Such profits as accrue to the cooperative have been distributed among workers in annual bonuses, which have ranged from 2 per cent to 7 per cent of the value of goods produced.

SHIPPING

Prior to the outbreak of the European War the prospect was bright for a substantial increase in the tourist trade and other shipping during the fiscal year 1940. The outbreak of hostilities had an immediately disturbing effect, since large numbers of ships calling at St. Thomas for oil bunkers and specially for coal bunkers flew the flags of nations which became belligerents. Fortunately for the community, however, the loss of one type of shipping occasioned by the war has been made up by an abnormal increase of the recently established bauxite transhipment business.

FISCAL

The actual revenue of the Municipality of St. Thomas and St. John amounted to $232,848.85 and that of the Municipality of St. Croix, $176,013.23. Income tax collections in the Municipality of St. Thomas and St. John were $99,236.21 as compared with $81,900.12 in the previous year. In the Municipality of St. Croix, income tax collections were $11,428.83 as compared with $9,816.19 in 1939.

GUAM AND AMERICAN SAMOA

By Leon S. Fiske

Commander, U.S.N.; Office of Island Governments, Navy Department

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GUAM

Historical.—The Island of Guam, located at the southern end of the Marianas group in approximate latitude 13° North and longitude 145° East, was discovered on March 6, 1521 by Magellan while on his voyage around the world. He named the islands "Ladrones." The name was changed later to "Marianas" in honor of Maria Ana of Austria, Queen of Spain. The first Spanish missionaries landed in Guam on June 15, 1668. A period of colonial development under Spanish rule was inaugurated and continued until June 21, 1898, when the island was captured by the U.S.S. *Charleston,* commanded by

Capt. Henry Glass, U. S. Navy. At the termination of the war with Spain, Guam was ceded to the United States by the Treaty of Paris.

Government.—The present form of government dates from Dec. 23, 1898, when President McKinley issued an Executive Order placing the Island of Guam under the control and jurisdiction of the Navy Department. A naval officer is commissioned by the President as Governor and the same officer receives orders from the Secretary of the Navy as Commandant of the Naval Station, Guam, which station includes the entire island. The Island Government, under the Governor, is organized with all the usual governmental departments, headed by naval officers. Civil regulations with the force and effect of law are issued by the Governor. There is a Guam Congress, composed of representatives of the people, which assembles periodically. It has no legislative authority, but acts entirely in an advisory capacity. The present Governor of Guam is Captain George J. McMillin, U. S. Navy. The seat of the island government is Agana.

Population.—On June 30, 1940, the total population of Guam was 23,067, divided as follows: native born, 21,502; foreign born, 787; naval establishment and families, 778. The native born population is steadily increasing. The natives are known as Chamorros and are of Malayan origin with strains of Spanish, Mexican, Chinese, American and Filipino blood. The official language is English but the ancient Chamorro tongue, corrupted by Spanish, English and dialects of the Philippines, is still in general use. Under American jurisdiction the natives are regarded as wards of the United States Government and are regarded as citizens of Guam. They have been little affected by the political, economic and industrial problems of the outside world and are protected from exploitation by the paternal form of government. No alien may own land in Guam and all sales of land must have the approval of the island government.

Agriculture.—Nearly every native family cultivates a small farm which supplies the principal necessities of food, and agriculture presents the best opportunity for achieving a self-supporting populace. The island Department of Agriculture, cooperating with the U. S. Department of Agriculture, is engaged in developing new and better crops and in teaching the people modern and scientific farming methods. An experimental farm is maintained for stock breeding and agriculture development; seeds are issued; and irrigation projects are extended. Copra is the principal crop and the one item of export at present, but the production of rice, tobacco and other crops which may be developed is being furthered by the government.

Trade and Commerce.—The copra export for the fiscal year 1940 totaled 1,462 tons. The balance of trade against Guam for the fiscal year 1940 was $540,361. Very few merchant ships called at Guam during the year; 182 vessels entered and cleared, including government vessels and aircraft clipper ships of the trans-pacific service. Imports were valued at $642,936 and exports at $102,575. The Pan American trans-pacific air service through Guam is an important connection with the outside world.

Banking.—The Bank of Guam, established by an Executive Order of the Governor in 1915, is the only bank in Guam. The capital stock of $25,000 is owned by the island government and the bank is operated for commercial banking as a division of the Treasury Department of that government. During the fiscal year 1940, the bank financed shipments of merchandise imported by the merchants of Guam to the value of $424,951. Gross earnings of the bank for the fiscal year were $30,614 and net earnings were $24,684.

Health and Sanitation.—The general health and sanitation conditions in Guam are good and there was no disease in epidemic form during the year. There are no civilian physicians or hospitals on the island, and the government hospitals for the people are operated by naval surgeons and nurses and native nurses trained by the naval personnel, who treat the people without charge. One civilian dentist is maintained by the island government. The entire population is benefited by the sanitary instruction, training of nurses and detection and isolation of infectious diseases. Schools are visited and children are examined physically by a health officer on an average of twice yearly.

Education.—The general policy of the naval island government, with reference to educational activities, has been formulated as follows: to enlighten the minds of the people by means of education and to stimulate their development through training and self-discipline. In accordance with that general policy, academic instruction includes the usual grammar school subjects with special emphasis placed on teaching the people the English language. Training in industry and agriculture is considered to be of paramount importance in connection with developing and encouraging the people to a greater degree of economic independence. During the year the average enrollment of the public schools was 4,694. There were 23 academic day schools, one high school, five industrial schools, one private school (primer to 12th grade), one agricultural school, and provision for normal school training. All teachers in the regular native schools are natives. Six Americans are employed in the American School for American children.

AMERICAN SAMOA

Historical.—The first record of the Samoan Islands is believed to be that made in 1722 by Jacob Roggeveen, in command of a Dutch expedition to Java *via* Cape Horn. That navigator called his discovery the Baumann Island but learned very little about them as he did not land. In 1768 they were visited by the French circumnavigator, Bougainville, who named them the Navigators Islands, a name generally used until Capt. Charles Wilkes, U. S. Navy, visiting them in 1839, first called them the Samoan Islands. Native wars and international controversies persisted through the 19th century until, on Dec. 2, 1899, the United States, Great Britain, and Germany signed a treaty by which the Samoan Islands west of longitude 171° W. were allocated to Germany and those east of that line to the United States. On April 17, 1900, the High Chiefs of Tutuila voluntarily ceded the islands of Tutuila and Aunnu to the United States and the islands of the Manua group were ceded by their chiefs on July 16, 1904. By Joint Resolution of Congress approved March 4, 1925 the sovereignty of the United States was extended to Swain's Island, 210 miles to the northward of Tutuila and that island was made a part of American Samoa.

Government.—On Feb. 19, 1900, the present form of government was established, when a Presidential Executive Order placed the islands of American Samoa under the jurisdiction of the Secretary of the Navy. They are under the immediate administration of a naval officer who is commissioned by the President as Governor of American Samoa and that officer is also Commandant of the Naval Station, Tutuila. The island government is organized with all the usual governmental departments, and in addition there are native district governors and native county and village chiefs who take an important part in administrative affairs. An annual fono, or general meeting, is attended by the chiefs and delegates of the people, at which meeting the Governor imparts information and receives recommendations and suggestions. The laws of American Samoa are embodied in a codification of the Regulations and Orders for the Government of American Samoa as issued by the Governor. The policy of the island government and Navy Department, briefly expressed as "Non-exploitation of the natives, non-alienation of the lands, and Samoa for the Samoans," is carefully followed in furthering the best interests of the people. The present Governor is Capt. Lawrence Wild, U. S. Navy. The seat of the government is Pago Pago, Tutuila.

Population.—On June 30, 1940 the total population, including all islands of American Samoa, was 12,962. The present population represents an increase of more than 100 per cent since 1900, the increase being due to the cessation of internecine warfare and the sanitary and medical work of the medical officers of the United States Navy. Under the paternal island government the people are happy and peaceful. Samoan customs and culture are preserved and respected by the authorities.

Agriculture.—The development of agricultural and industrial interests in a race not given to such pursuits has been difficult. However, in addition to the tropical fruits and vegetables native to the islands, various trees and crops have been introduced and developed by means of a government experimental farm, the value of which is gradually being realized by the natives. The most important product and export is copra, and the island government handles the sale of that crop.

Trade and Commerce.—Practically the only means of trade with the rest of the world is provided by the Matson Navigation Company which maintains a four-week schedule between San Francisco, Honolulu, Pago Pago, Suva, Fiji and Sydney, carrying passengers, mail and freight. Copra is the only export of importance. During the year 1940, 766 tons of copra valued at $28,473 were exported.

Banking.—The only bank in American Samoa is the Bank of American Samoa, founded in 1914 by Executive Order of the Governor. The bank conducts a general commercial and savings business, its capital stock of $25,000 is owned by the Island Government, and its principal officers and directors are naval officers of the island government. The bank is in sound financial condition, and the volume of its business has increased steadily.

Health and Sanitation.—Public health and sanitary conditions are maintained at a high standard by the naval medical officers. There are no civilian physicians in the islands and the medical officers of the Department of Health of the island government treat the entire native population without cost to the people. Hospitalization is modern and native nurses are trained by the naval personnel.

Education.—The average student enrollment for the school year was 2,770. There are 35 schools under the local Department of Education employing 74 teachers, all but 7 of whom are natives who have been trained as teachers. Special emphasis is given to instruction in the English language, health and sanitation. Samoan arts and crafts, agriculture, and manual and domestic arts. In addition to the public schools there are six parochial schools conducted by missionaries of various denominations, with a total attendance of about 500.

AMERICAN EQUATORIAL ISLANDS

By Frank T. Kenner

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Previous articles appearing in The American Year Book have covered thoroughly the first four years of the colonization projects of the American Equatorial Islands, and the 1939 issue covered the known history of them that had been gleaned from old records still in existence. Activities on Howland, Baker, Jarvis and Enderbury Islands remain the same as in previous years.

CANTON ISLAND

Canton Island now holds an important position along the Honolulu-Australian air route. The Pan American Airways completed their permanent base there, and clipper planes now maintain regular schedules between Honolulu and New Zealand. Canton Island is an important stop along this route, lying approximately halfway between Honolulu and Noumea, New Caledonia. The completed Pan American base possesses the facilities for refueling planes, permanent storehouses, landing docks and permanent buildings to house the Pan American personnel and visitors flying this air route. Excellent hotel facilities are maintained at Canton where it is necessary for the clipper planes to remain over-night. An ideal climate makes this base a delightful stop along the route.

In October, 1940 the Department of the Interior withdrew its colony. The presence of Pan American personnel fulfills the requirement of occupancy by citizens of the United States. The airport manager of the Pan American Airways base is designated Assistant Field Representative by the Secretary of the Interior in order that he may transact any U. S. Government business which may arise. With the withdrawal of the Department of the Interior colony, weather and radio schedules were taken over by the Pan American facilities. These schedules are maintained as in the past, dissemination of these reports including interested government departments, commercial facilities in the Pacific, and the U. S. Weather Bureau.

The British Government continues to maintain representation there by the presence of a Deputy Administrator and his family. The British colony now numbers six persons.

Pan American is continuing the agricultural and landscaping projects that were started in previous years. Although requiring considerable time to complete, these projects will greatly aid in beautifying the surroundings and providing the necessary windbreaks and shade and trees for the comfort of those who remain there and their transient guests.

Plans are now being formulated by the Civil Aeronautics Administration for the construction of a radio, meteorological, and beacon station on the island, which will probably start in the early part of 1941.

HOWLAND AND JARVIS

The Department of the Interior is continuing colonies at Howland, Baker, Jarvis and Enderbury Islands. Plans are now being formulated for the construction of two radio and meteorological stations at Howland and Jarvis Islands. These stations will be constructed and maintained by the Civil Aeronautics Administration. Present plans include increased permanent personnel residing at the islands and more extensive and modern facilities in their future operation. It is tentatively planned that, upon the completion of these stations and the assignment of Civil Aeronautics Administration personnel, the Interior colonies will be withdrawn. Present plans indicate that early 1941 will see the beginning of the projects on these two islands. The problem of landing heavy equipment necessary for the construction and later the maintenance of these stations still presents a serious engineering problem. The commissioning of these stations by the Civil Aeronautics Administration will fill a great need in the present extensive system of weather stations throughout the Pacific.

Changes in the operating personnel at Howland and Jarvis Islands were necessitated by the increased radio and weather schedules, particularly in the recording of upper air observations. Personnel include two radio operators. Present plans indicate that all personnel assigned in the future to Howland and Jarvis will be qualified radio operators.

The progress made in the horticultural developments on Howland and Jarvis has been most gratifying. The careful attention by personnel in fostering the growth of trees and shrubbery on these islands is great encouragement for the start of future projects along these lines. Ironwoods and palms have attained the height of ten feet, and shrubbery planted the weather side of the houses is attaining a considerable spread and a height of approximately seven feet. The valuable experience gained in cultivating these plants and trees will form the basis of a similar project upon the completion of the new stations.

BAKER AND ENDERBURY

Colonies have been maintained on Baker and Enderbury, and present plans indicate their continuance for a considerable time in the future. Colonists are in radio contact with the neighboring colonies, but it is not contemplated at this time to extend the facilities on these islands as their proximity to the other islands would be a duplication of the work now performed. The policy of the Interior Department is still followed in that four colonists are assigned on each island. Radiophone sets installed at Baker and Enderbury Islands eliminated the need for qualified radio operators. The colonists have shown an aptitude for the operation of phone sets and in emergency the use of regular telegraph keys and code.

The year has been notable for the considerable rainfall on all of the islands giving them a decidedly green and healthy appearance. Although the growth of plants and trees has not been fostered as extensively on Baker and Enderbury Islands, the growth at these islands has progressed favorably. Water continues to be a major problem, but with increased facilities for gathering rain water a sufficient supply can be maintained on the islands the year round, even through the dry periods.

THE DISTRICT OF COLUMBIA

By W. Reed West

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DISTRICT GOVERNMENT

The preoccupation of Congress and the Executive with other matters may account in part for a subsidence of the agitation for major changes in the organization of the District government. (See The American Year Book, 1939.) Legislation has been confined to comparatively minor issues.

CITIZEN STATUS IN THE COURTS

In an early decision of the Supreme Court of the United States it was held that a citizen of the District was not a citizen of a state within the meaning of the clause of the Constitution permitting citizens of the states to sue in the Federal courts on the grounds of diverse citizenship. This had sometimes worked a hardship. On April 20 an amendment to the Judicial Code was approved placing the citizens of the District on an equality with citizens of the states in respect to suits in the Federal courts.

TAXATION

A decision of the United States Supreme Court, departing from precedent upon the question of the situs of intangible personal property for taxation, led to a ruling by the Corporation Counsel holding that the District inheritance tax was applicable to assets held by District of Columbia fiduciaries comprising the corpus of revocable trusts existing under agreements with non-resident creators of such trusts. Since the same corpus would also be taxable at the residence of the creator upon his death, the trusts were being withdrawn from the District. The District was not gaining revenue and the trust companies were losing business. The result was an act (approved July 10) declaring that for inheritance and estate tax purposes intangible personal property not used in business was to be treated as located at the domicile of the owner, except in the case of aliens.

Another act (approved March 2) changed the final date for filing income tax returns from March 15 to April 15 or the fifteenth day of the fourth month after the end of a fiscal year, made it possible to pay in semiannual installments, and excluded payments under veterans' legislation from the income tax.

UNEMPLOYMENT COMPENSATION

The unemployment compensation act (See The American Year Book, 1935) was amended in certain respects (approved July 2), the most important of which reduced the tax on employers from 3 to 2.7 per cent, limited taxable wages to $3,000, postponed employer experience rating to 1942, set a minimum benefit of $6 and increased the maximum to $18, decreased the waiting period from three to two weeks, permitted some work during the waiting period, changed the eligibility provision for employment from 13 weeks in the last 52 to 25 times the weekly benefit or $250 whichever is lesser, provided for calculation of benefits on the basis of wages paid in the highest quarter of the base period (the first four out of the last five calendar quarters preceding benefits), fixed benefits for any year at 19 times the weekly benefit or one-half the wages during the base period whichever is the lesser, allowed $1 for each dependent relative up to $3 provided the maximum of $18 is not exceeded, and made the rules upon payment of partial benefits more favorable to recipients. The general effect of these provisions is to liberalize the act and to simplify the calculations. Other sections provide for placing employees of the board in the classified Civil Service, exempt insurance solicitors on a commission basis, and provide for the period of transition to the new system. Another act (approved April 22) exempted newspaper carrier boys from the operation of the unemployment compensation law, and another (approved Oct. 17) was designed to correct a situation under which national banks were paying into the Federal unemployment compensation fund while their employees were not eligible to benefits under the District law.

BUSINESS AND THE PROFESSIONS

The Life Insurance Act of 1934 (See The American Year Book, 1934) brought the regulation of life insurance into line with that of other jurisdictions, but the Marine Insurance Act of 1922, which included some incidental regulation of fire and casualty insurance, had been the last general insurance legislation in the District. An act of 1940 (approved Oct. 9), dealing with fire, marine, and casualty insurance, brings to these forms much the same standards as those applying to life insurance. In an act approved July 2, life insurance companies were authorized to issue so-called "creditor's group policies" up to $2,000, carrying insurance upon a borrower from a lending institution for an amount equal to that of his loan, and the laws governing deposits of insurance companies operating in the District were amended and clarified (approved May 20). Another act (approved July 2) provided that liens upon automobiles must be entered upon the certificates of title, and another (approved June 19) provided for the organization and regulation of cooperative associations.

An act (approved July 2) set up a board of examiners for the practice of dentistry and provided regulations for the professional conduct of dentists, and another act (approved June 29) provided for a board and professional regulations for the practice of podiatry (chiropody).

CRIME AND THE COURTS

Under the old Indeterminate Sentence Act the time between the minimum sentence and the maximum sentence might be too short to permit the proper operation of parole, and it had even occurred that the maximum sentence minus allowance of good-time had been shorter than the minimum sentence. A new act (approved June 6) limits the minimum sentence in felonies to no more than one-third of the maximum. Under the new act, wherever the minimum is exactly one-third of the maximum, the prisoner will be eligible for parole at the same time he would be under Federal law, but the District judges will have greater latitude than Federal judges since they may impose minimum sentences of less than one-third of the maximum. When the maximum is life imprisonment the minimum is not to exceed 15 years. Parole continues until expiration of the maximum sentence without regard to good-time. Parole is permitted to a place other than the paroled person's home. By this act the Attorney General of the United States is given custody of paroled persons, and persons breaking parole may be returned to any institution designated by him. The act permits parole to persons sentenced for two or more misdemeanors, including violations of municipal regulations and ordinances, and acts of Congress in the nature of municipal regulations or ordinances, when the sentence is for more than a year. Approval of a judge of the police court for early release for good conduct of any person in the jail or workhouse is not to be required, and a graduated scale of good-time allowance is set forth. Other provisions of the act deal with the method of providing funds for the parole board, and provide for a chief parole officer.

Other acts attempted to clarify the definition of murder in the first degree (approved June 12), authorized certified copies of adoption decrees where the adoptee was born outside the District (approved June 6) and restored to the juvenile court jurisdiction in non-support cases involving wives alone as well as wives in conjunction with children, which jurisdiction had been lost in the Juvenile Court Act of 1938, according to a decision of the District Court of the United States for the District of Columbia.

OTHER LEGISLATION

Provision was made (approved June 12) for leave of absence with part pay to employees of the public schools for educational improvement, the sanitary laws dealing with privies were modernized and the Commissioners of the District given broad powers of regulation (approved April 22), more adequate compensation was provided for members of the Board of Steam and Other Operating Engineers (approved June 29), residents of the Virgin Islands of the United States adjudged insane were made eligible for admission to Saint Elizabeth's Hospital (approved July 18), an advance of $450,000 from the Federal Emergency Administration of Public Works was authorized for the purpose of constructing an office for the recorder of deeds (approved July 11), police and firemen were authorized to retire at age 55 after 25 years of service (approved Oct. 14, 1940), a reduction of interest was authorized on advances made by the Public Works Administration to the District (approved July 1), and the Board of Education was authorized to accredit junior colleges (July 2). It should be noted that the Hatch Act "to prevent pernicious political activities" was extended by the act, approved July 19, to the District of Columbia as well as to the several states.

PART III

GOVERNMENTAL FUNCTIONS

DIVISION VII

PUBLIC FINANCE AND TAXATION

NATIONAL FINANCE AND THE PUBLIC DEBT

By William J. Carson

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GENERAL

As the economy of the United States shifted in 1940 from its national recovery effort, on which it had been focused for eight years, to a program adjusted to the demands of total defense and preparedness, Federal fiscal policy became increasingly concerned with problems of financing the country's rearmament program. In his message to the Congress early in January 1941, President Roosevelt said the budget of the United States Government for the fiscal year ending June 30, 1942, which he was then transmitting, was a reflection of a world at war. Total expenditures for the fiscal year ending June 1941 were estimated to be $13,202,000,000, and in the fiscal year ending in June 1942 he said they would increase to $17,486,000,000. Of the amounts for the fiscal year ending June 1942, outlays for national defense would amount to $10,811,000,000 and non-defense expenditures would total $6,674,000,000. In addition to these expenditures amounts may also be required for aid to the Allies. And in the years ahead as the rearmament program develops, still other sums may be necessary, as will surely be the case if the United States should become an active participant in the war.

To meet these larger expenditures larger revenues will be available but increased borrowing also will be necessary. The President said in his message that net receipts were $5,387,000,000 in 1940 and estimated receipts respectively for 1941 and 1942 were $7,013,000,000 and $8,275,000,000. On the basis of these figures the gross deficit, including debt retirement, to be financed by borrowing will be $3,740,000,000 in 1940; $6,290,000,000 in 1941; and $9,310,000,000 in 1942. Table I summarizes the receipts, expenditures and deficit in 1940 and the estimated receipts and expenditures in 1941 and 1942.

FEDERAL EXPENDITURES

Federal expenditures in the fiscal year 1940 and estimated expenditures in 1941 and 1942 are shown in detail in Table II.

Examination of the table shows that expenditures in the fiscal year 1940, before outlays for defense became large, totaled $9,127,000,000, exceeding the figure for any of the previous years of the decade of the 1930's. In 1941 and 1942, the first years in which defense expenses are expected to be large, total expenditures, excluding debt retirement, are estimated at $13,202,000,000 and $17,486,000,000, respectively. The principal changes in expenditures in 1940 from those in 1941 are increases of $4,900,000,000 in outlays for defense and decreases of $584,-

NATIONAL FINANCE AND THE PUBLIC DEBT

TABLE I

ACTUAL AND ESTIMATED BUDGET OF THE UNITED STATES GOVERNMENT

(Fiscal Years, 1940, 1941 and 1942)
General and Special Accounts

	Estimated, Fiscal Year 1942	Estimated, Fiscal Year 1941	Actual, Fiscal Year 1940
I. Receipts:			
1. Revenues:			
Internal revenue	$8,500,135,000	$6,817,210,000	$5,203,133,988.29
Railroad Unemployment Insurance Act	7,200,000	6,800,000	4,918,040.78
Customs	295,000,000	302,000,000	348,590,635.21
Miscellaneous revenues	161,438,830	158,030,305	162,454,931.73
Total revenues	$8,963,773,830	$7,284,040,305	$5,819,097,596.01
2. Realization upon assets:			
Return of surplus funds from government corporations	....	360,500,000	....
Other	7,961,170	8,669,695	105,738,806.75
Total receipts	$8,971,735,000	$7,653,210,000	$5,924,836,402.76
Deduct net appropriation for Federal old-age and survivors insurance trust fund	696,300,000	640,280,000	537,711,733.00
Net receipts	$8,275,435,000	$7,012,930,000	$5,387,124,669.76
II. Expenditures:			
1. Legislative, judicial and executive	$ 41,328,200	$ 38,546,168	$ 36,704,687.17
2. Civil departments and agencies	956,028,287	965,154,202	952,248,927.17
3. General public works program	502,884,000	570,002,000	540,785,326.45
4. National defense	10,811,314,600	6,463,923,900	1,579,905,425.73
5. Veterans' pensions and benefits	564,570,000	560,110,000	550,692,391.13
6. Aids to agriculture:			
Gross expenditures	1,061,561,700	1,106,391,800	1,375,062,905.68
Return of surplus funds from government corporations	....	*315,000,000	....
7. Aids to youth	362,590,000	369,325,000	377,893,084.34
8. Social security	462,520,000	430,279,900	383,615,113.02
9. Work relief:			
Gross expenditures	1,034,139,700	1,501,915,000	1,861,421,985.35
Return of surplus funds from government corporations	....	*24,500,000	....
10. Refunds	89,006,300	70,008,000	91,070,763.72
11. Interest on the public debt	1,225,000,000	1,100,000,000	1,040,935,696.71
12. Transfers to trust accounts	274,585,262	216,215,000	207,853,400.00
13. Supplemental items—regular	100,000,000	150,000,000	....
Total expenditures, excluding debt retirement	$17,485,528,049	$13,202,370,970	$8,998,189,706.47
III. Net deficit	$9,210,093,049	$6,189,440,970	$3,611,065,036.71
IV. Debt retirement	$100,000,000	$100,000,000	$129,184,100.00
V. Gross deficit	$9,310,093,049	$6,289,440,970	$3,740,249,136.71
VI. Means of financing deficit:			
1. Net decrease in working balance on general and special account	....	....	$1,083,066,410.14
2. Borrowings:			
Replacing debt retirement	$100,000,000	$100,000,000	129,184,100.00
Increasing the public debt	9,210,093,049	6,189,440,970	2,527,998,626.57
Total, means of financing	$9,310,093,049	$6,289,440,970	$3,740,249,136.71

* Excess of credits, deduct.

VII. PUBLIC FINANCE AND TAXATION

TABLE II

ACTUAL AND ESTIMATED EXPENDITURES OF UNITED STATES GOVERNMENT

(Fiscal Years, 1940, 1941 and 1942)

General and Special Accounts

	Estimated, Fiscal Year 1942	Estimated, Fiscal Year 1941	Actual, Fiscal Year 1940
I. Legislative, judicial and executive:			
1. Legislative establishment......	$25,950,400	$23,874,580	$23,070,529.31
2. Judicial establishment........	12,393,500	11,580,800	10,973,057.88
3. Executive office of the President	2,984,300	3,090,788	2,661,099.98
Total, legislative, judicial and executive..........	$41,328,200	$38,546,168	$36,704,687.17
II. Civil departments and agencies:			
1. Department of Agriculture....	$114,030,300	$152,386,000	$184,466,492.75
2. Department of Commerce.....	31,241,600	47,757,400	42,291,518.23
Civil Aeronautics...........	25,235,900	24,510,200	21,504,643.93
3. Department of the Interior....	70,075,500	83,580,100	89,262,944.41
4. Department of Justice........	55,471,000	52,875,500	52,641,402.71
5. Department of Labor.........	11,812,500	12,398,000	9,541,759.52
6. Department of State..........	19,171,500	19,771,500	21,848,092.44
7. Treasury Department.........	173,967,900	167,765,200	158,589,603.12
8. War Department (nonmilitary)	45,415,000	47,576,000	50,584,891.31
Panama Canal.............	10,775,000	11,050,000	11,981,490.78
9. Post Office Department, deficiency (from Annexed Budget)	51,087,587	29,760,102	41,991,378.92
10. District of Columbia, United States share (from Annexed Budget)..................	6,000,000	6,000,000	6,000,000.00
11. Federal Loan Agency.........	8,480,000	9,340,000	14,209,361.86
12. Federal Security Agency......	59,112,100	57,703,900	53,158,969.62
13. Federal Works Agency........	39,230,000	34,882,050	36,627,996.76
14. U. S. Maritime Commission...	150,178,500	135,180,500	98,809,569.23
15. Other independent offices and establishments.............	66,243,900	58,617,750	57,220,031.22
16. Refugee relief................	18,500,000	14,000,000	....
Unclassified items..........	....	....	75,042.33
Adjustment for disbursing officers' checks outstanding..	....	....	1,443,738.03
Total, civil department and agencies...........	$956,028,287	$965,154,202	$952,248,927.17
III. General public works program:			
1. Federal Security Agency......	$ 900,000	$ 275,000	$ 403,712.68
2. Federal Works Agency........	183,200,000	223,165,000	204,865,949.56
3. National Advisory Committee for Aeronautics...........	9,900,000	10,150,000	987,865.09
4. Tennessee Valley Authority....	40,000,000	40,000,000	39,135,754.44
5. Veterans' Administration......	4,000,000	5,000,000	5,980,993.30
6. Department of Agriculture....	9,800,000	9,500,000	11,477,059.19
7. Department of Commerce.....	1,500,000	2,059,000	354,313.95
8. Department of the Interior....	100,658,000	110,817,000	109,101,115.08
9. Department of Justice........	420,000	255,000	1,578,335.97
10. Department of State..........	2,206,000	2,781,000	2,444,822.21
11. War Department (nonmilitary)	150,300,000	166,000,000	164,455,404.98
Total, general public works program..............	$502,884,000	$570,002,000	$540,785,326.45
IV. National defense:			
1. Navy Department............	$3,447,394,000	$2,136,303,300	$891,484,523.08
2. War Department.............	5,956,600,600	3,845,665,700	667,138,363.59
3. Other agencies..............	407,320,000	381,954,900	21,282,539.06
4. Supplemental items..........	1,000,000,000	100,000,000	....
Total, national defense....	$10,811,314,600	$6,463,923,900	$1,579,905,425.73
V. Veterans' pensions and benefits...	$564,570,000	$560,110,000	$550,692,391.13

TABLE II—Continued

	Estimated, Fiscal Year 1942	Estimated, Fiscal Year 1941	Actual, Fiscal Year 1940
VI. Aids to agriculture:			
1. Agricultural Adjustment Program	$947,775,000	$968,544,600	$1,020,147,739.69
2. Commodity Credit Corporation	....	....	119,599,918.05
3. Farm Tenant Act	5,339,000	25,312,200	41,779,009.15
4. Federal Farm Mortgage Corporation	9,400,000	*90,500,000	7,125,158.14
5. Federal Land Banks	27,000,000	*72,500,000	29,315,767.69
6. Farm Security Administration	65,000,000	67,000,000	158,536,339.40
7. Farm Credit Administration	7,047,700	*106,465,000	*1,441,026.44
Total, aids to agriculture	$1,061,561,700	$791,391,800	$1,375,062,905.68
VII. Aids to youth:			
1. Civilian Conservation Corps	$265,000,000	$274,000,000	$283,244,748.93
2. National Youth Administration	97,590,000	95,325,000	94,648,335.41
Total, aids to youth	$362,590,000	$369,325,000	$377,893,084.34
VIII. Social security:			
1. Administrative expenses	$ 26,120,000	$ 26,907,800	$ 23,747,789.27
2. Grants to States	436,400,000	403,372,100	359,867,323.75
Total, social security	$462,520,000	$430,279,900	$383,615,113.02
IX. Work relief:			
1. Works Projects Administration	....	$975,000,000	$1,477,537,908.00
2. Public Works Administration	38,600,000	122,500,000	347,742,750.40
3. Other	5,539,700	29,915,000	36,141,326.95
4. Supplemental items	990,000,000	350,000,000	....
Total, work relief	$1,034,139,700	$1,477,415,000	$1,861,421,985.35
X. Refunds:			
1. Customs	$18,500,000	$16,000,000	$17,486,902.12
2. Internal revenue	63,006,300	44,008,000	61,812,222.70
3. Processing tax on farm products	7,500,000	10,000,000	11,771,638.90
Total, refunds	$89,006,300	$70,008,000	$91,070,763.72
XI. Interest on the public debt	$1,225,000,000	$1,100,000,000	$1,040,935,696.71
XII. Transfers to trust accounts:			
1. Railroad retirement account	$141,700,000	$123,500,000	$120,650,000.00
2. Government employees' retirement funds (United States share)	102,885,262	92,715,000	87,203,400.00
3. Adjusted service certificate fund	10,000,000	....	....
4. National service life insurance fund	20,000,000	....	....
Total, transfers to trust accounts	$274,585,262	$216,215,000	$207,853,400.00
XIII. Supplemental items—regular	$100,000,000	$150,000,000	....
Total, expenditures (excluding debt retirement)	$17,485,528,049	$13,202,370,970	$8,998,189,706.47
XIV. Debt retirement	$100,000,000	$100,000,000	$129,184,100.00
Total, expenditures	$17,585,528,049	$13,302,370,970	$9,127,373,806.47

* Excess of credits, deduct.

000,000 and $384,000,000, respectively, in expenditures for aid to agriculture and for work relief. Among the major changes in 1942 from 1941 will be increases of $4,347,000,000 for defense and $270,000,000 for aid to agriculture;

VII. PUBLIC FINANCE AND TAXATION

TABLE III

ACTUAL AND ESTIMATED RECEIPTS OF THE UNITED STATES GOVERNMENT

(Fiscal Years, 1940, 1941 and 1942)
General and Special Accounts Excluding Postal Revenues

	Estimated, Fiscal Year 1942	Estimated, Fiscal Year 1941	Actual, Fiscal Year 1940
I. Revenues:			
1. Internal revenue			
(1) Income tax (including tax on unjust enrichment)	$4,509,500,000	$3,055,000,000	$2,125,324,634.92
(2) Miscellaneous internal revenue taxes:			
Capital Stock tax	193,400,000	166,800,000	132,738,537.17
Estate tax	341,700,000	317,300,000	330,886,048.91
Gift tax	32,800,000	31,300,000	29,185,118.03
Liquor taxes	839,500,000	810,500,000	624,064,334.57
Tobacco taxes	716,630,000	691,930,000	608,072,770.23
Stamp taxes	39,980,000	36,240,000	38,681,242.52
Manufacturers' excise taxes	666,400,000	623,500,000	446,704,661.02
Sugar taxes	60,100,000	59,900,000	68,145,357.56
Sundry taxes	138,825,000	133,540,000	81,162,876.02
Total (unadjusted)	$3,029,335,000	$2,871,010,000	$2,359,640,946.03
Adjustment to daily Treasury statement	....	....	−15,015,815.19
Total, miscellaneous internal revenue taxes	$3,029,335,000	$2,871,010,000	$2,344,625,130.84
(3) Employment taxes:			
Taxes on employment by other than carriers:			
Federal Insurance Contributions Act	$725,300,000	$667,500,000	$604,694,236.48
Federal Unemployment Tax Act	91,100,000	88,400,000	107,523,266.69
Total	$816,400,000	$755,900,000	$712,217,503.17
Taxes on carriers and their employees	144,900,000	135,300,000	120,966,719.36
Total, employment taxes	$961,300,000	$891,200,000	$833,184,222.53
Total, internal revenue	$8,500,135,000	$6,817,210,000	$5,303,133,988.29
2. Railroad Unemployment Insurance Act	$ 7,200,000	$ 6,800,000	$ 4,918,040.78
3. Customs	295,000,000	302,000,000	348,590,635.21
4. Miscellaneous revenues:			
(1) Miscellaneous taxes	$ 2,903,500	$ 2,953,500	$ 3,192,211.80
(2) Rents and royalties	11,287,011	8,814,380	7,851,548.83
(3) Permits, privileges and licenses	3,414,205	3,280,105	2,842,913.73
(4) Mint receipts	36,186,000	46,186,000	49,085,644.70
(5) Interest, exchange and dividends	4,791,794	11,994,325	20,199,069.37
(6) Fines and penalties	2,253,377	2,543,837	4,103,020.43
(7) Fees	15,111,039	15,155,068	15,303,823.16
(8) Forfeitures	1,695,052	1,715,990	1,766,496.01
(9) Assessments	7,155,200	8,030,200	7,434,678.61
(10) Reimbursements	9,813,727	10,078,845	10,157,849.79
(11) Gifts and contributions	17,519	18,004	27,319.30
(12) Sales of products	11,468,931	8,503,516	5,100,456.11
(13) Sales of services	47,805,475	32,036,535	27,565,220.30
(14) Sundry receipts	7,536,000	6,720,000	6,555,509.59
Total, unadjusted	$161,438,830	$158,030,305	$161,185,761.73
Adjustment to daily Treasury statement	....	....	+1,269,170.00
Total, miscellaneous revenues	$161,438,830	$158,030,305	$162,454,931.73
Total, Revenues	$8,963,773,830	$7,284,040,305	$5,819,097,596.01

TABLE III—Continued

	Estimated, Fiscal Year 1942	Estimated, Fiscal Year 1942	Actual, Fiscal Year 1940
II. Realization upon assets:			
1. Return of surplus funds from government corporations[1]	....	$360,500,000	....
2. Repayments of investments	4,527,630	4,897,212	$102,762,354.98
3. Sales of public lands	115,000	115,000	121,606.48
4. Sales of government property	3,318,540	3,657,483	2,854,845.29
Total, realization upon assets	$7,961,170	$369,169,695	$105,738,806.75
Total, receipts, general and special accounts	$8,971,735,000	$7,653,210,000	$5,924,836,402.76
Deduct net appropriation for Federal old-age and survivors' insurance trust fund	696,300,000	640,280,000	537,711,733.00
Net receipts, general and special accounts	$8,275,435,000	$7,012,930,000	$5,387,124,669.76

[1] Other return of surplus funds of government corporations reflected as credits against expenditures.

and decreases of $443,275,000 in expenditures for work relief and $67,000,000 for public works.

On the basis of these figures it is of nterest to note that, although some reduction is estimated in non-defense expenditures as defense outlays increase, the reductions are small when compared with the increases in expenditures for defense and relatively small in terms of the levels of those expenditures in years prior to 1940. A growing body of opinion holds that eductions in non-defense expenditures should be made as defense outlays expand and the need for expenditures for relief and recovery becomes ess. By such reductions in non-relief xpenditures it is maintained that demands on the Federal Treasury would be lightened and some of the dangers f inflation would be lessened.

REVENUE AND TAXATION

Net receipts of the Treasury during he fiscal year ended in 1940 were ightly larger than in 1939, reflecting ainly increased business activity and rger returns from income taxes. In 941 and 1942 receipts are estimated o be $1,626,000,000 and $1,263,000,000 rger respectively than in the previous year. For 1942 net receipts are expected to total $8,275,000,000 as compared with $5,387,000,000 in 1940.

Increased receipts in 1941 and 1942 as the defense program advances are expected to result mainly from a growth in the national income but it is also anticipated that higher rates and lower exemptions will likewise contribute to increased receipts. In his budget message in 1941 President Roosevelt said that the national income would rise under the impetus of the defense program and from a higher national income a greater revenue will flow. Thus the defense program will dominate not only the expenditure side of the Federal budget but will greatly influence the expected revenue. Table III shows in detail the actual receipts in the fiscal year 1940 and estimated receipts in the fiscal years 1941 and 1942.

GROWTH AND DISTRIBUTION OF THE PUBLIC DEBT

At the close of the fiscal year ended June 30, 1940 the Federal gross debt was $43,000,000,000. In the remaining months of 1940 it increased month by month, and at the end of November it amounted to $44,273,000,000. By the end of the fiscal year 1941 the debt will approximate $50,000,000,000 and

TABLE IV

GROWTH OF THE PUBLIC DEBT

(In millions of dollars at end of each month)

	Total Receipts	Total Expenditures	Surplus (+) or Deficit (−)	Trust Account Receipts (+) or Expenditures (−)	General Fund Balance	Gross Debt
1937						
January	284	631	−348	+ 72	1,726	34,501
February	275	553	−279	− 7	1,539	34,600
March	1,012	754	+257	− 98	1,826	34,727
April	363	708	−345	+ 8	1,702	34,939
May	335	552	−217	− 3	1,754	35,211
June	868	1,300	−432	+ 20	2,553	36,425
July	409	659	−249	+ 44	2,639	36,716
August	453	556	−103	+ 37	2,902	37,045
September	788	680	+108	+ 20	2,860	36,875
October	333	606	−283	+ 18	2,676	36,956
November	327	494	−167	− 37	2,608	37,094
December	866	678	+188	− 11	2,973	37,280
1938						
January	335	533	−198	.....	2,950	37,453
February	349	515	−166	+ 11	2,975	37,633
March	959	748	+211	+ 31	3,140	37,557
April	273	642	−369	− 36	2,689	37,511
May	375	568	−193	+158	2,567	37,423
June	774	930	−156	+ 63	2,216	37,165
July	311	763	−451	+325	2,116	37,192
August	487	683	−195	− 63	2,260	37,594
September	711	751	− 40	− 41	2,978	38,394
October	332	769	−437	− 3	2,569	38,424
November	382	678	−296	− 6	2,447	38,604
December	704	862	−157	− 31	3,083	39,428
1939						
January	308	693	−385	+ 30	2,932	39,632
February	417	662	−245	+428	3,342	39,859
March	737	870	−132	+ 52	3,388	39,986
April	268	785	−517	+ 93	3,042	40,064
May	397	744	−348	+ 89	2,923	40,283
June	613	951	−339	+ 95	2,837	40,441
July	308	807	−499	−113	2,446	40,663
August	420	822	−402	− 44	2,230	40,893
September	719	784	− 65	+ 46	2,177	40,859
October	322	764	−442	− 1	1,913	41,037
November	407	691	−284	+267	2,166	41,305
December	569	889	−320	+ 15	2,476	41,943
1940						
January	315[1]	712	−398	+ 37	2,282	42,110
February	444	668	−224	+ 36	2,350	42,365
March	799	822	− 22	+ 11	2,514	42,540
April	304	783	−479	+ 58	2,210	42,658
May	400	647	−247	− 83	2,030	42,808
June	649	887	−238	− 62	1,891	42,968
July	331	818	−487	+ 51	2,258	43,771
August	447	706	−259	+320	2,454	43,905
September	711	759	− 48	−158	2,415	44,073
October	333	869	−536	− 24	1,920	44,137
November	362	817	−455	+216	1,817	44,273
December	740	1,172	−432	−209	1,928	45,025

[1] Net receipts.

by June 1942 it is likely to amount to $60,000,000,000. In anticipation of this expansion the Secretary of the Treasury suggested in December 1940 that the statutory debt limit be raised to $60,000,000,000 or $65,000,000,000, and President Roosevelt in his budget message questioned the significance of any statutory debt limit, except as it may serve as a fiscal monitor. Table IV shows in detail the growth of the public debt from January 1937 to November 1940.

In addition to the direct debt as thus described it should also be noted that the Federal Government has guaranteed the debt of several Federal agencies. The total of the guaranteed debt at the end of the 1940 fiscal year amounted to $5,528,000,000. The principal agencies for which obligations have been guaranteed are the Federal Farm Mortgage Corporation, Home Owners Loan Corporation, Reconstruction Finance Corporation, and Commodity Credit Corporation. When this debt is added to the direct debt of the Federal Government, the total debt on June 30, 1940 was $48,528,000,000.

In an analysis in its January 1941 review of economic conditions the National City Bank of New York describes the distribution of the Federal debt as follows: "Holdings of federal debt by the banks, insurance companies and government agencies accounted for 75 per cent of the total outstanding on June 30, 1940. Following is a compilation of the principal known holders as of this, or the latest available date, and ten years before, including both direct and fully guaranteed debt, which for certain groups is not reported separately:

"It will be seen that during the ten-year period, 1930-1940, the total direct debt increased by over $26,000,000,000, in addition to which over $5,000,000,000 of guaranteed debt was created, making a total increase of over $32,000,000,000.

"Of this increase, something over $8,000,000,000 of the direct debt and $3,000,000,000 of the guaranteed debt was taken by the commercial banks. Mutual savings banks increased their holdings by over $2,000,000,000, and the Federal Reserve Banks by $1,859,000,000.

"Government trust funds, including the old-age insurance, unemployment compensation, civil service and veterans' funds, together with the postal savings system, the Federal Deposit Insurance Corporation and other government agencies, absorbed more than $6,000,000,000 of government securities during this period. Life, fire and casualty insurance companies also purchased more than $6,000,000,000 net. Thus the aggregate purchases of new debt accounted for by the known institutional holders and trust funds was $28,000,000,000, or nine-tenths of the total increase.

"Commercial banks absorbed about one-third of the new federal public debt created during the period. Four-fifths of the total increase in their holdings took place in the first six years, which was a time when secured and commercial loans of the banks were declining rapidly. Another factor in the increase in government security holdings by the banks was the calling for redemption of certain Liberty and Victory Loan issues, which were widely held by investors, and their refunding into short-term and low-coupon issues that appealed principally to banks.

"Contrary to a common opinion, only a comparatively small part of the increase in public debt during the past four years has been taken by the commercial banks, involving an expansion of bank deposits and carrying inflationary dangers. The major portion of new debt has been absorbed by the social security and other trust funds, the savings banks, insurance companies and other investors, whose purchases come out of savings and involve no increase in bank deposits.

"Considering the banking system as a whole, the holdings of guaranteed obligations to considerable extent represent an exchange for farm mortgage, urban mortgage and other types of loans previously held and refinanced by the government agencies set up at that time, and therefore do not involve net increases in bank credit.

"Over 40 per cent of the total government portfolio of the commercial banks, according to latest figures, consists of bills, notes and bonds maturing in less than five years. On June 30,

DISTRIBUTION OF U. S. GOVERNMENT DIRECT AND GUARANTEED DEBT

(As of June 30, 1930–1940)
(In Millions of Dollars)

Outstanding	June 30, 1930	June 30, 1940	Change
Total direct debt	$16,185	$42,968	+26,783
Total guaranteed debt	......	5,560	+ 5,560
Total debt	16,185	48,528	+32,343
Distribution			
Banks:			
Commercial banks—direct	4,796	13,089	+ 8,293
Commercial banks—guaranteed	......	3,460	+ 3,460
Commercial banks—total	4,796	16,549	+11,753
Mutual savings and private banks[1]	702*	3,162	+ 2,460
Total banks, exclusive Federal Reserve Bank	5,498	19,711	+14,213
Federal Reserve Banks	591	2,450	+ 1,859
U. S. agencies and trust funds:			
Old-age insurance fund	......	1,738	+ 1,738
Railroad retirement account	......	79	+ 79
Unemployment compensation trust fund	......	1,710	+ 1,710
Government employees retirement funds	158	568*	+ 410
Veterans' insurance and trust funds	704	858*	+ 154
Postal savings system	26	1,218	+ 1,192
Federal Deposit Insurance Corporation	......	347	+ 347
Federal Savings & Loan Insurance Corporation	......	123	+ 123
Other government agencies	30	409	+ 379
Other trust funds	58	23*	− 35
Total agencies and trust funds	976	7,073	+ 6,097
Insurance companies:			
Life insurance companies	331*	6,088*	+ 5,757
Fire insurance companies	169*	462*	+ 293
Casualty insurance companies	108*	470*	+ 362
Total insurance companies	608	7,020	+ 6,412
Total accounted for	7,673	36,254	+28,581
Balance unaccounted for, held by individuals, corporations, trustees, etc.	8,512	12,274	+ 3,762
Percentage distribution:			
Commercial banks	29.7	34.1	+ 4.4
Savings and private banks	4.3	6.5	+ 2.2
Total banks	34.0	40.6	+ 6.6
Federal Reserve Banks	3.6	5.0	+ 1.4
United States agencies and trust funds	6.1	14.6	+ 8.5
Insurance companies	3.8	14.5	+ 10.7
Total accounted for	47.5	74.7	+ 27.2
Balance unaccounted for	52.5	25.3	− 27.2

* Partly estimated.

[1] Private bank holdings amounted to $2 millions in 1930 and to $49 millions in 1940.

1940, the government direct and guaranteed issues held by all banks which were members of the Federal Deposit Insurance Corporation, and whose holdings comprised 96 per cent of the total for all commercial banks, were distributed by maturities as shown on the following table.

MATURITY DISTRIBUTION OF U. S. GOVERNMENT SECURITY HOLDINGS BY ALL INSURED BANKS

(June 30, 1940)
(In millions of dollars)

	Amount	Per Cent
Under five years		
Treasury bills	$ 805	5.1
Treasury notes	2,699	17.0
Treasury bonds—under 5 years	750	4.7
Guaranteed—under 5 years	2,158	13.5
Total under five years	6,413	40.3
Over five years		
Treasury bonds—5 to 10 years	3,489	22.0
Treasury bonds—10 to 20 years	4,110	25.8
Treasury bonds—over 20 years	677	4.3
Guaranteed—over 5 years	1,212	7.6
Total over five years	9,488	59.7
GRAND TOTAL	$15,901	100.0

"These figures reflect the wide extent to which commercial banks have followed a policy of keeping a large portion of their rapidly increasing deposits in cash and in short-term government securities, which afford extremely small yields and reduce current income correspondingly, but which would be subject to relatively small decline in market price in the event of a tightening of interest rates and a readjustment of the bond market to a higher yield basis. Government security holdings of banks will be accepted by the Federal Reserve Banks at par as security for advances.

"Moreover, the prices at which government bonds are carried on the books of most banks are probably well under the prevailing market values, giving a 'cushion' represented by unrealized price appreciation and by the application of profits on bonds sold during recent years against various 'reserves' rather than to current income.

"The aggregate government security holdings of all insured banks given

TABLE V

AVERAGE YIELD ON SHORT-TERM OBLIGATIONS OF THE UNITED STATES GOVERNMENT

	1938		1939		1940	
	New Issues of Treasury Bills	3–5 Year Treasury Notes	New Issues of Treasury Bills	3–5 Year Treasury Notes	New Issues of Treasury Bills	3–5 Year Treasury Notes
January	.10	1.13	.002	.65	.001	.47
February	.08	1.09	.004	.63	.004	.46
March	.07	1.01	.005	.51	(1)	.42
April	.08	.94	.019	.50	.003	.45
May	.03	.77	.006	.42	.042	.65
June	.02	.67	.006	.39	.071	.76
July	.05	.70	.017	.45	.009	.57
August	.05	.71	.046	.48	.019	.58
September	.10	.82	.102	1.07	.021	.48
October	.02	.68	.028	.77	(1)	.43
November	.02	.71	.018	.64	.003	.34
December	.01	.67	.015	.55	(1)	.35

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[1] Rate negative.

above compare with aggregate capital funds on the same date of $6,606,000,000, including outstanding capital of $2,892,000,000, surplus of $2,484,000,000, and undivided profits of $837,000,000."

BOND PRICES AND YIELDS

Yields on United States Government bonds and short term obligations declined still further in 1940, and as the year closed they were at the lowest levels in recent history. In November long term bonds were selling to yield less than two per cent and yields on 3- to 5-year Treasury notes averaged .34 per cent. Tables V, VI and VII show the course of yields and prices by months of the three years 1938, 1939, and 1940.

TABLE VI

AVERAGE YIELD ON LONG-TERM U. S. BONDS

	1938	1939	1940
January	2.65	2.47	2.30
February	2.64	2.44	2.32
March	2.64	2.34	2.25
April	2.62	2.30	2.25
May	2.51	2.17	2.38
June	2.52	2.13	2.39
July	2.52	2.16	2.28
August	2.51	2.21	2.25
September	2.58	2.65	2.18
October	2.48	2.60	2.10
November	2.50	2.46	1.97
December	2.49	2.35	1.89

TABLE VII

UNITED STATES GOVERNMENT BOND PRICES

Month	(Monthly Averages of Daily Figures)		
	1938	1939	1940
January	101.3	103.7	106.0
February	101.4	104.1	105.7
March	101.4	105.4	106.7
April	101.7	106.0	106.7
May	103.1	107.8	104.9
June	103.0	108.4	104.8
July	103.0	107.9	106.3
August	103.1	107.2	106.7
September	102.2	101.3	107.7
October	103.5	102.0	108.8
November	103.3	103.8	110.7
December	103.4	105.3	111.8

Although the low yields may be attributed in large measure to continued gold imports resulting in excess bank reserves, they have worked to the advantage of the Treasury in that it has been able to finance the increase in the public debt at declining interest rates. Low yields on the other hand have operated to the disadvantage of banks and other investors. With holdings of government securities several times larger in amount in 1940 than in 1930, as shown above, total returns to the banks from these holdings are probably little if any larger today than a decade ago.

GROWING IMPORTANCE OF FISCAL POLICY

Federal expenditures, revenues, and debt of the amounts described above, their growth over the period of the quarter century since 1916, and their still further increases in the years immediately ahead, as a result of the impacts of present European and Asiatic wars, are affecting and will continue to affect the national economy in a multiplicity of ways. The distribution of the national income is being altered; the amount of individual and corporate savings is being greatly influenced; the formation of capital and the direction of investment are being subjected to a variety of obstacles and controls; the banking system is becoming more and more dependent upon government securities and the credit of the government; the concepts of bank credit and capital are becoming confused and less distinct; monetary policy is being conditioned by public financing; and finally, the structure of the economy including the development and growth of enterprise are being subjected to far-reaching changes.

On these counts alone, fiscal policy must be ranked high, perhaps highest, among the crucial economic problems of our day. Yet there is another compelling reason why it is of increasing importance. At the present time numerous governmental actions with respect to matters of taxation, or expenditures, or public debt are determined to an important degree by a conscious purpose on the part of governments to influence some features, if not the basic structure, of the national economy. Not only is this application of fiscal policy expanding rapidly and in a variety of ways, but it is taking place without benefit of long experience or of widely accepted theoretical analysis. Thus, the whole field of fiscal policy is one that demands increasing attention of students, legislators, public administrators, and managers of enterprise. Wise and effective decisions by governments and private enterprises in the years ahead will require the continuing efforts of all of these, in view of the important role which fiscal matters now hold in our economic organization.

STATE FINANCES*

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EXPENDITURES

The expenditures of state governments for operation and maintenance increased 73 per cent between 1932 and 1937, the latest years for which comparable figures are available. The expenditures shown in Table 1 include apportionments made to minor civil divisions. Schools accounted for the largest part of expenditures in 1932, but by 1937 expenditures for charities, hospitals, and corrections were more important. There was an increase in the amount spent for every purpose except health, sanitation, and recreation, but because of the tremendous growth of expenditures for relief, expenditures for every purpose other than charities, hospitals, and corrections were a smaller proportion of the total in 1937 than in 1932, with the sole exception of expenditures for highways. Expenditures for schools yielded the first place of importance to expenditures for charities, hospitals, and corrections in 1937, but in both 1937 and 1932 expenditures for highways held third place and those for general government fourth place.

The great increase in expenditures for relief are reflected also in the change in the percentage distribution of total expenditures, as can be seen in Table 2. Expenditures for the operation and maintenance of general departments were much more important in 1937 than in 1932, while those for outlays were much less important. But in spite of the growth of state debt in the intervening years, payments for interest were a smaller proportion of total expenditures in 1937 than in 1932, mainly because of the lower rates of interest on state bonds in 1937.

REVENUE

The revenue of state governments practically doubled between 1932 and 1937. The increase in revenue on a per capita basis was almost as great—$31.69 in 1937 compared with $17.83 in 1932. Such an increase was necessary as a result of the tremendous growth of state expenditures.

The relative importance of the various sources of revenue in 1937 and 1932 is shown in Table 3. Taxes furnished about the same proportion of revenue in both years. Among the non-tax sources of revenue, grants-in-aid and the earnings of public service enterprises have become relatively more important. Such a condition is, of course, to be expected in view of the developments of recent years.

There has been a change also in the relative importance of various taxes. A glance at Table 2 will indicate that, while property taxes were yielding

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* The information presented here can be found in *Financial Statistics of States* for 1932 and 1937, Bureau of the Census, U.S. Department of Commerce; *Tax Policy*, September, 1940; and *Tax Systems of the World*, Commerce Clearing House, Inc.

TABLE 1

EXPENDITURES FOR MAINTENANCE AND OPERATION

	1937		1932	
	Amount (000 omitted)	Per Cent Distribution	Amount (000 omitted)	Per Cent Distribution
Total	$2,601,887	100.0	$1,501,393	100.0
General government	150,970	5.8	123,333	8.4
Protection to persons and property	106,055	4.1	86,875	5.8
Highways	436,080	16.7	235,690	15.9
Health and sanitation	36,288	1.4	37,292	2.5
Charities, hospitals, and corrections	860,361	33.0	274,920	18.4
Schools	821,984	31.6	602,065	39.4
Libraries	2,455	.1	2,405	.2
Recreation	6,815	.3	8,054	.6
Development and conservation of natural resources	77,942	3.0	72,965	4.8
Miscellaneous	102,927	4.0	57,794	4.0

TABLE 2

PERCENTAGE DISTRIBUTION OF TOTAL EXPENDITURES

	1937	1932
Total	100.0	100.0
Operation and maintenance of general departments	75.8	60.2
Interest	3.6	4.5
Outlays	20.6	35.3

slightly more revenue in 1937 than in 1932, they were a much less important source of revenue in the later year. Inheritance taxes were yielding only slightly less revenue in 1937, but they too were relatively less important. Income taxes and other taxes, however, increased both in total amount and in relative importance. The increase in income taxes is due to higher rates of taxation and to the use of the income tax by a larger number of states. The increase in other taxes is to be accounted for by gasoline taxes and general sales taxes, both of them developments of the depression and of the search for new sources of revenue. During 1937 the gasoline tax yielded the largest amount of revenue, the general sales tax yielded the next largest amount, and the property tax held third place.

Table 4 shows the total amount of revenue and the per capita amount received from each source, and the relative importance of each source.

Although the figures presented here are for 1937, the latest year for which figures are available, the discussion that follows will be devoted to a discussion of changes in taxation during 1940.

PROPERTY TAXES

About two-thirds of the states still levy a property tax for state purposes, but additional restrictions on the levy of such taxes by the states were imposed during 1940. A constitutional amendment was approved in Florida prohibiting the levy of state *ad valorem* taxes on real or personal property except intangible personal property after 1941. The 40-mill tax limitation law was reenacted in Washington. Colorado defeated a constitutional amendment authorizing the General Assembly to levy *ad valorem* tax of not less than $5 nor more than $10 per $1,000 of intangible personal property. In Arkansas, however, a constitutional amendment to exempt certain personal property from taxation was defeated. In North Dakota, likewise, an amendment providing for the exemption of personal property was defeated. In Montana a referendum was approved providing for an increase in the rate of taxation on real and personal property not to exceed 3½ mills on each dollar of taxable valuation for the University Agricultural Experiment Stations and Extension Service.

As in previous years, numerous

TABLE 3

REVENUE IN 1937 AND 1932

Source of Revenue	1937 Amount (000 omitted)	1937 Per Cent Distribution	1932 Amount (000 omitted)	1932 Per Cent Distribution
Total	$4,065,557	100.0	$2,207,935	100.0
Total Taxes	3,074,321	75.6	1,141,850	74.3
Property	373,397	9.2	323,477	14.7
Income (Personal)	158,619	3.9	47,852	2.1
Inheritance and estate	114,903	2.8	143,959	6.5
Poll	4,654	.1	5,321	.2
Other	2,422,748	59.6	1,121,241	50.8
Nontaxes	991,237	24.4	566,085	25.7
Special assessments	2,843	.1	26,060	1.2
Grants-in-aid	586,270	14.4	249,282	11.3
Earnings of general departments	181,713	4.5	154,701	7.0
Earnings of public service enterprises	50,794	1.2	10,179	.5
Other	169,617	4.2	125,863	5.7

changes were made in the laws concerning exemptions. Three states voted on the question of homestead exemptions. Arizona defeated an initiative petition to exempt owner-occupied homes from taxation. North Dakota defeated a constitutional amendment providing for a graduated land tax and exemption from taxation of land, of a value not exceeding $5,000, occupied as a residence. In Mississippi, however, a new homestead exemption law was passed; homes owned by residents who are heads of families are exempt from all state *ad valorem* taxes, and all taxes for maintenance and current expenses of various local districts. The bonds

TABLE 4

REVENUE OF 1937

Source of Revenue	Amount (000 omitted)	Per Capita	Per Cent Distribution
Total revenue	$4,065,557	$31.69	100.0
Total taxes	3,074,321	23.96	75.6
Property	373,397	2.91	9.2
General	206,433	1.61	5.1
Selective	47,817	.37	1.2
Special	119,147	.93	2.9
Income:			
Corporation	81,046	.63	2.0
Individual	158,619	1.24	3.9
Inheritance and estate	114,903	.90	2.8
Poll	4,654	.04	.1
Severance	44,137	.34	1.1
Sales	1,266,565	9.87	31.2
Motor fuel	627,196	4.89	15.4
General sales and use	430,996	3.36	10.6
All other	208,372	1.62	5.1
Business license	304,870	2.38	7.5
Nonbusiness license taxes and permits			
Motor vehicle	305,972	2.38	7.5
All other	17,363	.14	.4
Unemployment Compensation	346,770	2.70	8.5
All other	56,025	.44	1.4
Nontaxes	991,237	7.73	24.4
Special assessments and special charges	2,843	.02	.1
Grants-in-aid	586,270	4.57	14.4
Earnings of general departments	181,713	1.42	4.5
Contributions from public-service enterprises	50,794	.40	1.2
All other	169,617	1.32	4.2

of low cost rural housing projects are to be exempt from taxation in Kentucky. The notes and bonds of housing authorities are exempt from state and local taxes in New York; the value of the project over and above previous assessed value is also exempt. Boy Scout property has been added to the list of tax exempt property in Rhode Island. Louisiana defeated a constitutional amendment granting exemptions from taxation to manufacturing establishments. In Mississippi, however, factories for the construction of airplanes or the repair of aircraft, factories for the extraction or manufacture of tung oil, paint factories, plants manufacturing food products from domestic fats and oils, and syrup refineries are to be exempt from *ad valorem* taxes, except state taxes, for five years.

Some administrative changes have also been made in the property tax. South Carolina approved a constitutional amendment to provide for the levy biennially of an annual tax. Parish boards of equalization have been abolished in Louisiana. Kentucky reduced the interest on tax bills from 8 per cent to 6 per cent, and New Jersey provided for the collection of delinquent municipal liens on an installment basis.

SEVERANCE TAXES

Severance taxes are to be found in 21 states. Louisiana amended its acts relating to severance taxes in several ways. In Mississippi a law was passed which exempts all timber from *ad valorem* taxes but imposes a privilege tax of 3 per cent on the value of timber at the time of its severance for commercial use.

PERSONAL INCOME TAXES

Four states amended their laws during 1940 to permit taxation of salaries of Federal employees—Maryland, Mississippi, Virginia, and Louisiana. Interest on United States obligations is no longer to be excluded from gross income in Louisiana, but payments made under veterans legislation in the District of Columbia are to be excluded from gross income. A change in the laws of Mississippi makes all corporation dividends taxable, and provides for a credit for taxes paid on income from sources outside Mississippi. Income tax returns in New York are no longer to be sworn to, but an individual's name signed to a return is to be *prima facie* evidence that the return was signed by him. Louisiana made its maximum rate applicable to income over $8,000 instead of $50,000 and levied a tax of 5 per cent on the net income over $5,000 from the sale or lease of certain unimproved lands, mineral rights and leases. New York continued its additional emergency rate for another year. Mississippi raised its rates, and made its highest rate applicable to income over $10,000 instead of to that over $15,000. South Carolina repealed its tax on income from dividends and interest, repeal to be effective after the 1940 tax is collected.

CORPORATION AND BUSINESS TAXES

Thirty-two states and the District of Columbia tax corporations on their net incomes; the rates of taxation are shown in Table 6. New York continued its additional tax on the net income of corporations, its emergency tax of 4 per cent on the net income of unincorporated business, its tax of 2 per cent on the gross income of public utilities, and its emergency tax on stock transfers. Mississippi eliminated its specific exemption of $1,000, increased the rates of taxation on the net income of corporations, and increased the franchise tax from $1 to $1.50 per $1,000 of capital. The tax on pipe lines in Mississippi, which had varied from a minimum of $10 to a maximum of $50, was raised to a minimum of $15 and a maximum of $75. The tax on telegraph companies was raised from $3.50 to $4 of pole line or conduit, and the tax on express companies from $4 to $5 per track-mile of operation. Louisiana raised its income tax on corporations and repealed its provision exempting corporations engaged exclusively in the

TABLE 5

PERSONAL INCOME TAXES

State	Rate	Maximum Rate Applies to Income Over	Exemptions		
			Single	Head of Family	Dependents
Alabama	1½–5	$ 5,000	$1,500	$3,000	$300
Arizona	1–4½	10,000	10 from tax	20 from tax	4 from tax
Arkansas	1–5	25,000	1,500	2,500	400
California	1–15	250,000	1,000	2,500	400
Colorado	1–6	10,000	1,000	2,500	400
Delaware	1–3	10,000	1,000	2,000	200
District of Columbia	1–3	20,000	1,000	2,500	400
Georgia	1–7	20,000	1,000	2,500	400
Idaho	1½–8	5,000	700	1,500	200
Iowa	1–5	4,000	10 from tax	20 from tax	5 from tax
Kansas	1–4	7,000	10 from tax	20 from tax	5 from tax
Kentucky	2–5	5,000	1,000	2,500	400
Louisiana	2–6	50,000	1,000	2,500	400
Maryland	2½–6	Type of income	1,000	2,500	400
Massachusetts	1½ to 6 and 10% of tax	Type of income	2,000	2,500	250
Minnesota	1–10	20,000	10 from tax	30 from tax	5 from tax
Mississippi	3–6½	10,000	1,000	2,500	400
Missouri	1–4	9,000	1,000	2,000	200
Montana	1–4	6,000	1,000	2,000	300
New Mexico	1–4	100,000	1,000	1,500	200
New York	2–7	9,000	1,000	2,500	400
North Carolina	3–7	6,000	1,000	2,000	200
North Dakota	1–15	15,000	5 from tax	15 from tax	2 from tax
Oklahoma	1–9	8,000	850	1,700	300
Oregon	2–7	4,000	800	1,500	300
	2 (surtax)		500	800	
South Dakota	1–8	318,000	6 from tax	12 from tax	2 from tax
Utah	1–5	5,000	600	1,200	300
Vermont	2 on net income 4 on interest and dividend		1,000	2,000	250
Virginia	1½–3	5,000	1,000	2,000	250
West Virginia	1–4	3,000	1,000	2,000	300
Wisconsin	1–7 & 60% of tax	12,000	8 from tax	17.50 from tax	4 from tax

business of transport by water in interstate and foreign commerce. Rhode Island made extensive revisions in its Corporate Excess law, and also pro-

TABLE 6

TAXES ON THE NET INCOME OF CORPORATIONS

State	Rate in %	State	Rate in %	State	Rate in %
Alabama	3	Louisiana	6	Oregon	8
Arizona	1–5	Maryland	1½	Pennsylvania	7
Arkansas	2	Massachusetts	2½	South Carolina	4½
California	4	Minnesota	1–5	South Dakota	1–8
Colorado	4	Mississippi	3–8	Tennessee	6
Connecticut	2	Missouri	2	Utah	3
District of Columbia	5	Montana	3	Vermont	2
Georgia	5½	New Mexico	2	Wisconsin	2–6 & surtax
Idaho	1½–8	New York	6		
Iowa	2	North Carolina	6	Virginia	3
Kansas	2	North Dakota	3–6		
Kentucky	4	Oklahoma	6		

vided that franchise and corporate excess taxes should apply to corporations whether or not they do business for profit. In Virginia all non-profit sewage and water purification companies were made subject to the annual franchise tax in lieu of all state and local property taxes. A tax of ¼ to 1¢ per mile was levied on motor carriers of persons in Alabama and one of ¼ to 1¢ per mile on motor carriers of property.

INHERITANCE, ESTATE TAXES, AND GIFT TAXES

Nevada is the only state that does not tax estates or inheritances. New York repealed the provision of its law allowing a credit for death taxes paid to other states, and continued its emergency rates for another year. Intangibles of non-residents are no longer taxable in Louisiana, and Alabama has provided for reciprocal exemption of intangibles of non-residents unless the intangibles are used in business.

With the addition of Louisiana there are now nine states with gift taxes—California, Colorado, Louisiana, Minnesota, North Carolina, Oregon, Tennessee, Virginia, and Wisconsin. These taxes have been imposed to prevent inheritance and estate taxes from being evaded by gifts *inter vivos.*

TABLE 7

INHERITANCE TAXES

State	Rate Scale, Direct Heirs %	Rate Scale, Collateral Heirs %
Arkansas	1–10	2–40
California	2–10	5–16
Colorado	2–8	3–16
Connecticut	2–9	2–13
Delaware	1–4	2–8
District of Columbia	1–5	3–15
Idaho	2–15	4–30
Illinois	2–14	6–30
Indiana	1–10	5–20
Iowa	1–8	5–15
Kansas	½–5	3–15
Kentucky	2–16	4–16
Louisiana	2–3	5–10
Maine	1–3	4–8
Maryland	1	7½
Massachusetts	1–9	3–12
Michigan	2–8	10–15
Minnesota	1–18	3–60
Missouri	1–6	3–30
Montana	2–8	4–32
Nebraska	1	4–12
New Hampshire	none	8½
New Jersey	1–16	5–16
New Mexico	1–1½	3–5
North Carolina	1–12	4–17
Ohio	1–4	5–10
Pennsylvania	2	10
Rhode Island	1–7	2–11
South Carolina	1–6	2–14
South Dakota	1–8	3–20
Tennessee	1–7	5–15
Texas	1–6	3–20
Vermont	1–5	5
Virginia	1–5	2–15
Washington	1–10	3–25
West Virginia	3–13	4–30
Wisconsin	2–10	4–40
Wyoming	2	4–6

TABLE 8

ESTATE TAXES

State	Rate %	Exemption
Alabama	4/5–16	$100,000
Arizona	4/5–16	100,000
Colorado	4/5–16	100,000; tax levied only if estate exceeds $250,000
Florida	4/5–16	100,000
Georgia	4/5–16	100,000
Mississippi	4/5–16	50,000
New York	1–20	20,000 to husband and wife; $2,000 to ancestors and descendants. 5,000 to minor descendants
North Dakota	2–23	20,000 to husband and wife 2,000 to ancestors and descendants 2,000–5,000 to minor descendants
Oklahoma	1–10	15,000
Oregon	1–15	10,000
Rhode Island	1	10,000
Utah	3–10	10,000

GASOLINE TAXES

Every state imposes a tax on gasoline. New York continued its emergency tax for another year. The definition of "taxable motor fuel" was widened in Alabama, Louisiana, South Carolina, Virginia, and New York.

Constitutional amendments prohibiting highway tax revenue to be used for other purposes than highways were approved in Idaho, Nevada, North and South Dakota. Eleven states now have such laws.

TABLE 9

GASOLINE TAXES

State	Cents per Gallon	State	Cents per Gallon	State	Cents per Gallon
Alabama	6	Maine	4	Ohio	4
Arizona	5	Maryland	4	Oklahoma	4
Arkansas	6½	Massachusetts	3	Oregon	5
California	3	Michigan	3	Pennsylvania	4
Colorado	4	Minnesota	4	Rhode Island	3
Connecticut	3	Mississippi	6	South Carolina	6
Delaware	4	Missouri	2	South Dakota	4
Florida	7	Montana	5	Tennessee	7
Georgia	6	Nebraska	5	Texas	4
Idaho	5	Nevada	4	Utah	4
Illinois	3	New Hampshire	4	Vermont	4
Indiana	4	New Jersey	3	Virginia	5
Iowa	3	New Mexico	5	Washington	5
Kansas	3	New York	4	West Virginia	5
Kentucky	5	North Carolina	6	Wisconsin	4
Louisiana	7	North Dakota	4	Wyoming	4

SALES TAXES AND GROSS INCOME TAXES

The most notable development in sales taxation during 1940 was the repeal of the Louisiana sales tax. That state refused, however, to adopt a constitutional amendment prohibiting the levy of a sales tax.

In the following table sales taxes and gross income taxes have both been included because of their fundamental similarity.

USE TAXES

Use taxes have been enacted as a supplement to sales taxes. Since the Federal constitution forbids any state to levy a tax on the sale of goods purchased in another state, many states that have sales taxes have levied a tax on goods that are stored or consumed. California passed a law that no credit shall be allowed on the ground that storage, use, etc. of personal property is exempt because of the payment of a sales tax, unless the buyer has reimbursed the seller for the amount of retail sales tax paid by the seller. Seventeen states have use taxes. In most of them the rate is the same as that of the sales tax.

CHAIN STORE TAXES

Mississippi and Kentucky changed the type of their chain store taxes and increased the maximum rate applicable to each store. In Mississippi the rate of the tax is reduced by 2/5 for stores in cities with a population of less than 3,000, and by 1/5 for stores in cities with a population from 3,000 to 6,000.

TOBACCO TAXES

A tax on tobacco is levied by twenty-five states. New York continued its emergency cigarette tax until June 30, 1941. Rhode Island repealed its taxes on tobacco, except those on cigarettes. A law passed in Louisiana exempts from taxes cigarettes and tobacco sold to United States soldiers by canteens on establishments maintained by the Federal government.

VII. PUBLIC FINANCE AND TAXATION

TABLE 10

SALES TAXES AND GROSS INCOME TAXES

State	Tax
Alabama	2% of gross receipts of retail sales; ½ of 1% on sale of automobiles; extends to amusements.
Arizona	2% of gross receipts of retail sales of tangible personal property; extends to other kinds of business at rate of ¼%–2%.
Arkansas	2% of gross receipts of retail sales of tangible personal property; extends to amusements and to public utilities.
California	3% of gross receipts of retail sales of tangible personal property.
Colorado	2% of gross receipts of retail sales of tangible personal property; extends to public utilities and to meals.
Connecticut	$1 on each $1000 of gross income of unincorporated retailers; 25¢ on each $1000 of gross income of unincorporated wholesalers; extends to unincorporated motor transportation, amusement, and manufacturing business at $1 per $1000 of gross income.
Delaware	1/10% of aggregate cost value of all merchandise, produce, goods, and wares purchased for sale by wholesalers and retailers in excess of $5000.
Florida	½% of gross receipts of retailers.
Illinois	3% of gross receipts from retail sales of tangible personal property; extends to public utilities.
Indiana	¼% of gross income from wholesale sales; 1% on gross receipts of retailers; extends to other kinds of business at ¼%.
Iowa	2% of gross receipts from retail sales of tangible personal property; extends to amusements and public utilities.
Kansas	2% of gross receipts from retail sales of tangible personal property; extends to public utilities, amusements, meals and drinks.
Michigan	3% of gross receipts of retailers; extends to public utilities.
Mississippi	2% of gross receipts of retailers; 1/8% of gross receipts of wholesalers; extends to other kinds of business at rate of ¼%–2½%.
Missouri	2% of gross receipts of retail sales of tangible personal property; extends to amusements, public utilities, charges for rooms, meals, and drinks.
New Mexico	2% of gross receipts of retailers; 1/8 of gross receipts of wholesalers; extends to other kinds of business at ¼%–1%.
North Carolina	3% of gross receipts of retailers; 1/20% of gross receipts of wholesalers.
North Dakota	2% of gross receipts of retail sales of tangible personal property; extends to public utilities and amusements.
Ohio	3% of gross receipts of retail sales of tangible personal property.
Oklahoma	2% of gross receipts of retail sales of tangible personal property; extends to public utilities; amusements and other kinds of businesses.
Pennsylvania	1 mill on each $1 of gross receipts of retailers; ½ mill on each $1 of gross receipts of wholesalers.
South Dakota	3% of gross receipts of retail sales of tangible personal property; extends to public utilities and amusements.
Utah	2% of gross receipts of retail sales of tangible personal property; extends to public utilities, amusements, lodgings and meals.
Vermont	Tax on retailers varies from $10 on $1000 to 13¢ on $100, depending on volume of sales; tax on wholesaler varies from $50 on $10,000 to 13¢ on $100 depending on volume of sales.
Washington	2¼% of gross receipts of retailers; ¼% of gross receipts of wholesalers.
West Virginia	2½% of gross receipts of retailers; 15/100% of gross receipts of wholesalers.
Wyoming	2% of gross receipts of retail sales of tangible personal property; extends to public utilities, amusements, lodging and meals.

LIQUOR TAXES

Every state taxes liquor. Nine states have monopolies and sell liquor in state stores. In other states liquor is taxed by a system of licenses and by a tax of a certain amount per gallon or per barrel, or a tax of a certain percentage of sales. The rate of taxation was increased in 1940 in Kentucky, South Carolina, Louisiana, and Virginia. In Louisiana liquor sold to United States soldiers by canteens on establishments maintained by the Federal Government is to be exempt from taxation.

TABLE 11

State	Tax on Cigars	Tax on Cigarettes
Alabama	$1 to $13.50 per 1000 cigars depending on retail price.	1½–6 mills each depending on weight and retail price.
Arizona	1¢ per three cigars to 1¢ per cigar depending on retail price.	2¢ on each 20 cigarettes or fraction thereof.
Arkansas	10% of retail price.	$2.50 per 1000 cigarettes.
Connecticut	———	1 mill per cigarette.
Georgia	$1 to $13.50 per 1000 cigars depending on retail price.	1½–6 mills each depending on weight and retail price.
Iowa	———	1 mill to 2 mills per cigarette depending on weight.
Kansas	———	2¢ on each 20 cigarettes or fraction thereof.
Kentucky	———	1¢ on each 10¢ or fraction thereof of retail price.
Louisiana	$2 to $13.50 per 1000 cigars depending on the retail price.	2 mills per cigarette.
Massachusetts	———	1 mill per cigarette.
Mississippi	1¢ on each 5¢ or fraction thereof of retail price.	2 mills per cigarette.
New Hampshire	15% of retail price.	15% of retail price.
New York	———	1¢ on each 10 cigarettes or fraction thereof.
North Dakota	———	1½ mills to 2 mills per cigarette depending on weight.
Ohio	———	1¢ on each 10 cigarettes or fraction thereof.
Oklahoma	———	1½ mills per cigarette.
Pennsylvania	———	1¢ on each 10 cigarettes.
Rhode Island	———	1 mill per cigarette.
South Carolina	1¢ per 10 to $10 per 1000 depending on weight and retail price.	1¢ on each 5¢ or fraction of retail price.
South Dakota	———	1½ mills to 4 mills per cigarette depending on weight.
Tennessee	5% on manufactured tobacco. $1 to $13.50 per 1000 cigars.	1½ mill per cigarette; 15% when retail price is over 1¢.
Texas	———	Less than 3 lbs. per 1000, $1.50. More than 3 lbs. per 1000, $3.60.
Utah	———	Not more than 3 lbs. per 1000, 1 mill each. More than 3 lbs. per 1000, 2 mills each.
Vermont	———	1 mill per cigarette.
Washington	———	1 mill per cigarette; 20% when retail price is over 1¢.

MISCELLANEOUS TAXES

New York and New Jersey have been added to the states levying taxes on parimutuel wagers, making 20 states in all that levy such taxes. The New Jersey tax is levied at 4 per cent and the New York tax at 5 per cent.

Kentucky reduced its tax on admissions, but levied a tax of 15 per cent on the gross amount of bank night awards.

ADMINISTRATION

A notable change was made in the administration of taxes in Louisiana. A Department of Revenue was created to take over the duties of the Collector of Revenue, the Tax Commission, the Board of Tax Appeals, and part of the duties of other officers and agencies.

INDEBTEDNESS

The total net debt of states in 1937 and the per capita debt in 1937 and 1932 is shown in Table 14. (The debt shown in Table 14 is the funded or fixed debt less sinking fund assets, but not including contingent and floating obligations.) That the debt increased in these years is not surprising, in view of the heavy demands for state expenditures. Although there was an increase in the debt of all states in 1937, there was a decrease during that year in the debt of over half of the states.

VII. PUBLIC FINANCE AND TAXATION

TABLE 12

TAXES ON CHAIN STORES

State	Maximum Tax	Applicable to Each Store Above
Alabama	$112.50	20
Colorado	300	24
Delaware	10 plus 10 cents for each $100 of aggregate cost value of goods in excess of $5,000	
Florida	400	15
Georgia	200	40
Idaho	500	19
Indiana	150	20
Iowa	155	50
Kentucky	200	350
Louisiana	550	500
Maryland	150	20
Michigan	250	25
Minnesota	350	151
Mississippi	300	350
Montana	200	4
North Carolina	250	200
South Carolina	150	30
South Dakota	150	50
Tennessee	3 upon each 100 sq. ft. floor space	1
Texas	750	50
West Virginia	250	75

TABLE 13

TAXES ON THE NET INCOME OF BANKS

State	Rate %
Alabama	6
California	4–8
Colorado	6
Connecticut	2
Idaho	1.5–8
Massachusetts	6
New York	4½
Oklahoma	1–6
Oregon	8
South Carolina	4½
South Dakota	3
Utah	3
Wisconsin	2–6 & surtax

TABLE 14

TOTAL NET DEBT OF STATES IN 1937, AND PER CAPITA DEBT IN 1937 AND 1932

State	Total Debt	Per Capita	
		1937	1932
Maine	$ 29,969	$15.05	$39.71
New Hampshire	13,901	27.31	12.89
Vermont	7,843	20.53	24.19
Massachusetts	22,772	5.15	4.04
Rhode Island	26,966	39.60	24.15
Connecticut	(1/)	(1/)	....
New York	525,900	40.62	25.60
New Jersey	86,905	20.04	15.05
Pennsylvania	121,670	11.98	7.76
Ohio	10,427	1.55	.89
Indiana	4,458	1.29	.90
Illinois	200,539	25.50	24.48
Michigan	34,123	7.10	11.38
Wisconsin	1,184	.41	.40
Minnesota	62,559	23.66	14.33
Iowa	6,458	2.53	5.94
Missouri	119,215	29.89	28.25
North Dakota	(1/)	(1/)	5.48
South Dakota	2,511	3.63	20.74
Nebraska	531	.39	.17
Kansas	21,457	11.46	11.05
Delaware	3,118	11.98	8.63
Maryland	50,787	30.27	21.56
Virginia	23,892	8.88	9.87
West Virginia	76,019	41.11	47.18
North Carolina	136,420	39.25	51.02
South Carolina	40,771	21.83	38.48
Georgia	23,492	7.61	3.45
Florida	......	....	....
Kentucky	14,929	5.14	.87
Tennessee	91,007	31.60	34.62
Alabama	72,591	25.14	24.97
Mississippi	51,460	25.53	16.23
Arkansas	163,859	80.44	85.94
Louisiana	126,325	59.25	34.50
Oklahoma	11,936	4.70	.55
Texas	26,649	4.33	1.27
Montana	9,850	18.41	8.03
Idaho	2,204	4.49	8.87
Wyoming	3,215	13.68	17.68
Colorado	30,056	28.12	5.68
New Mexico	15,243	36.12	23.46
Arizona	1,598	3.91	.61
Utah	3,901	7.53	9.29
Nevada	662	6.56	9.27
Washington	115,547	17.64	21.41
Oregon	26,389	25.82	32.27
California	106,332	17.40	24.12
Grand Total	$2,424,648	$18.90	$16.37

(1/) Sinking-fund assets are in excess of funded or fixed debt.

MUNICIPAL FINANCE

By H. K. Allen

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GENERAL

An examination of the financial condition of municipalities for the year 1940 shows definite signs of a continuation of the improvement which began in 1934. This further improvement is indicated especially by a decline in tax delinquencies, an increase in the collection of back taxes, and a decrease in the number of defaults. The decline in tax delinquencies and the increase in back tax

MUNICIPAL EXPENDITURES

(000 omitted)

Operation and Maintenance, by Major Functions

Year	Total	General Government	Protection to Person and Property	Health and Sanitation	Highways
1937[1]	$2,025,052	$159,557	$330,107	$127,634	$106,242
1936[1]	1,838,803	150,213	317,154	141,207	108,910
1935[1]	1,797,798	139,144	307,733	135,892	111,358
1934[1]	1,744,975	135,766	298,758	134,296	111,306
1933[1]	1,727,043	142,296	298,852	138,921	110,652
1932[1]	1,806,517	149,909	328,797	160,010	127,670
1931	2,229,492	183,171	421,055	202,502	181,314
1929	1,730,288	140,521	339,816	174,858	147,375
1927	1,562,615	136,848	315,362	160,259	137,892
1924	1,287,484	111,856	259,275	130,388	109,807
1922	1,155,691	105,174	234,199	115,488	98,763
1919	697,319	72,585	146,763	75,847	65,003
1915	546,568	62,793	120,696	55,758	60,615
1911	452,899	53,766	106,120	45,691	52,214
1907	367,367	42,703	87,885	36,899	42,718
1903	278,173	30,842	71,020	25,807	34,208

[1] Statistics for 1932 to 1937 are for 94 cities having a population in 1930 over 100,000. All other data are for cities over 30,000. Because of some changes in the basis of classification, the figures for 1937 are not strictly comparable with those for earlier years.

Year	Charities, Hospitals, and Corrections	Schools	Libraries	Recreation	Miscellaneous
1937	$451,472	$596,129	$24,101	$58,132	$171,678
1936	366,466	571,922	21,119	52,303	109,504
1935	337,990	545,718	20,840	47,943	151,180
1934	345,214	526,864	20,271	48,306	124,194
1933	292,212	542,034	19,744	60,097	122,235
1932	234,419	629,353	......[1]	63,117	113,242
1931	201,896	839,577	......[1]	78,952	121,027
1929	116,147	622,587	23,029	61,863	94,091
1927	99,806	560,668	20,167	53,839	77,731
1924	79,239	475,725	15,782	41,819	63,590
1922	76,627	422,843	14,326	38,703	49,603
1919	53,262	216,701	9,079	24,204	33,870
1915	38,285	162,332	7,134	20,416	18,535
1911	30,647	127,604	5,939	17,114	13,801
1907	24,408	102,395	4,989	11,794	13,572
1903	18,280	80,853	4,067	7,457	5,634

[1] Expenditures for libraries and schools combined in 1931 and 1932.

collections resulted from the general improvement in business conditions and from the activities of various Federal agencies. The reduction in the number of defaults is largely attributable to the improvement in tax collections.

EXPENDITURES

The most recent year for which the comprehensive statistics of the Bureau of the Census are available is for 1936. Unfortunately, the figures for 1932 to 1936 are limited to cities having a population of over 100,000. By Executive Order of June 10, 1933, the annual collection and compilation of financial statistics was limited to cities of over 100,000 population.

While some of the absolute expenditures just noted may appear large, yet too great significance should not be attached to them. The size of an expenditure becomes intelligible in terms of service when one discovers the number among whom it is divided. The per capita expenditures of cities, both as a whole and for particular items, have varied greatly from time to time, but the general tendency has been to increase. The following table shows the change in per capita expenditures for selected years:

PER CAPITA EXPENDITURES

Year	Total	General Government	Protection to Person and Property	Health and Sanitation	Highways	Charities, Hospitals, and Corrections	Education Schools	Libraries**	Recreation**	Miscellaneous*
1937	$53.75	$4.24	$8.77	$3.38	$2.82	$11.98	$15.82	$.64	$1.54	$4.56
1936	48.83	3.99	8.43	3.75	2.89	9.73	15.19	.56	1.39	2.91
1935	47.78	3.70	8.18	3.61	2.76	8.98	15.05	....	1.27	4.02
1934	46.43	3.61	7.95	3.57	2.97	9.18	14.56	....	1.29	3.30
1933	46.08	3.80	7.98	3.71	2.95	7.80	14.99	....	1.60	3.26
1932	47.87	3.97	8.71	4.24	3.38	6.21	16.68	....	1.67	3.00
1931	46.18	3.79	8.72	4.19	3.75	4.18	17.39	....	1.63	2.51
1929	43.45	3.66	8.46	4.33	3.70	2.78	16.14	.59	1.55	2.25
1927	40.77	3.46	8.13	4.13	3.60	2.49	15.08	.53	1.40	1.94
1924	35.61	3.01	7.10	3.55	3.07	2.08	13.52	.44	1.15	1.67
1922	33.15	2.94	6.66	3.25	2.87	2.08	12.50	.41	1.09	1.34
1919	21.63	2.22	4.53	2.34	2.04	1.59	6.88	.28	.74	1.01
1915	18.45	2.10	4.06	1.86	2.06	1.26	5.58	.24	.68	.61
1911	17.62	2.08	4.12	1.77	2.04	1.17	5.04	.23	.65	.53
1907	15.95	1.86	3.80	1.59	1.91	1.05	4.42	.21	.51	.59
1903	13.19	1.46	3.35	1.21	1.64	.86	3.86	.10	.35	.27

* Payment for pensions are included in column "Miscellaneous" for the years 1911 to 1928 inclusive; for the years 1903 to 1909 inclusive, they are included with expenses of police, fire, and school departments.

** Payments for expenses of art galleries and museums are included in column "Recreation" for the years 1911 to 1928 inclusive; for the years 1903 to 1909 inclusive, they are included with the expenses of libraries; expenditures for libraries and schools are combined for the years 1931 to 1935.

IMPORTANCE OF DIFFERENT MUNICIPAL EXPENDITURES

There is a wide difference in the importance attached to the different functions performed by municipalities. While over a period of years there has been some change in the relative importance of some of the items, it is interesting to note that expenditures for education have always been far larger than any other, and that the relative importance of this item up to 1932 tended to increase with the years. Protection and highways have commanded a smaller percentage of the expenditures than formerly. The most significant development in recent years, it will be

PERCENTAGE OF EXPENDITURES FOR DIFFERENT FUNCTIONS

Year	General Government	Protection to Person and Property	Health and Sanitation	Highways	Charities, Hospitals, Corrections	Education Schools	Libraries*	Recreation	Miscellaneous
1937	7.9	16.3	6.3	5.2	22.3	29.4	1.2	2.9	8.5
1936	8.2	17.2	7.7	5.9	19.9	31.1	1.1	2.8	6.0
1935	7.7	17.1	7.5	6.2	18.8	31.6	....	2.7	8.4
1934	7.8	17.1	7.7	6.4	19.8	31.4	....	2.8	7.1
1933	8.2	17.3	8.1	6.4	16.9	32.5	....	3.5	7.1
1932	8.3	18.2	8.9	7.1	13.0	34.8	....	3.5	6.3
1931	8.2	18.9	9.1	8.1	9.1	37.6	....	3.5	5.4
1929	8.4	19.5	10.0	8.5	6.4	37.2	1.4	3.6	5.2
1927	8.5	20.0	10.1	8.8	6.6	37.0	1.3	3.4	4.8
1924	8.5	19.9	10.0	8.6	5.9	38.0	1.2	3.2	4.7
1922	8.9	20.1	9.8	8.7	6.3	37.7	1.2	3.3	4.0
1919	10.2	21.0	10.8	9.4	7.3	31.8	1.3	3.4	4.7
1915	11.4	22.0	10.1	11.2	6.8	30.2	1.3	3.7	3.3
1911	11.8	23.4	10.1	11.6	6.6	28.6	1.3	3.7	3.0
1907	11.7	23.8	9.9	12.0	6.6	27.7	1.3	3.2	3.6
1903	11.1	25.3	9.2	12.4	6.5	29.3	1.5	2.7	2.1

* Percentages for schools and libraries combined for the years 1931 to 1935.

noted, is the increase in expenditures for charities, hospitals, and corrections. The above table shows the relative importance of the different services over a period of years:

The expenditures just described are designated as "expenses" by the Census Bureau. In addition to these are a number of other expenditures, the most important of which are for interest, outlays, and payments for operation and maintenance of public-service enterprises. The interest payments are for the funded and floating debt, special assessment loans, and other minor types of borrowing. In 1937 the total interest payment was $336,063,000. The corresponding figure for 1936 was $354,114,735.

Expenditures for outlays comprise the amounts paid for the acquisition and construction of more or less permanent improvements, including payments for additions made to those previously acquired or constructed. Such payments in 1937 amounted to $535,014,000 in comparison with $438,737,948 for the preceding year.

The water-supply system is the most important public-service enterprise operated by American cities. Of the 94 municipalities for which the census data are available, 84 have water-supply systems, and the payments for operating them in 1937 amounted to $200,362,000. The revenue receipts for these enterprises were $206,235,000.

SOURCES OF REVENUE

Property Taxes.—The revenue of cities arises from a number of sources. In most cities more than 90 per cent of the funds which go into the general revenue fund come from the general property tax. This is a tax levied against real and personal property. In addition to the general property tax the Census Bureau designates certain taxes as special property taxes. Such include taxes upon the capital stock of corporations, upon savings banks and other financial institutions, and upon insurance companies. Included in this, also, would be taxes levied upon mortgages at time of recording, taxes upon incomes and estates, upon investments, and a wide range of specific taxes.

Poll and Business Taxes.—In many cities, also, some form of poll tax continues to be used, although such taxes are much less important than formerly. No generalization can be made as to method of levy since this varies greatly from city to city. In addition, business and non-business license taxes make up a large group of levies upon different types of business activities, some of which, of course, are levied primarily for regulative purposes. The latter include such levies as those upon dogs, dance halls, etc. Receipts from special assessments constitutes an important item, but they do not enter the general revenue fund. In some places at a particular time subventions and grants are an important source of income, while in some cities, also, the earnings from public enterprises are not unimportant. The relative importance of the major sources of revenue over a period of years is shown in the following table:

PERCENTAGE OF RECEIPTS FROM DIFFERENT SOURCES OF REVENUE

Year	The General Property Tax	Other Taxes	Special Assessments	Subventions and Grants, Donations and Pension Assessments	Earnings of Public Service Enterprises*	Other Revenues
1937	65.2	8.0	1.2	16.4	....	9.2
1936	59.7	7.9	1.6	14.3	10.4	6.1
1935	60.2	6.8	1.7	15.6	9.5	6.2
1934	62.6	5.3	2.2	13.5	9.8	6.6
1933	64.3	4.3	2.4	12.3	9.5	7.2
1932	66.2	4.7	3.9	8.5	9.3	7.4
1931	66.2	4.7	3.9	8.5	9.3	7.4
1929	64.7	6.4	7.2	5.8	9.8	6.1
1927	66.1	5.7	7.7	4.9	9.6	6.2
1924	66.1	5.7	5.9	5.3	10.3	6.8
1922	66.9	5.2	4.8	5.9	9.0	8.2
1919	66.0	7.6	5.6	4.1	10.2	6.4
1915	62.4	7.8	8.5	4.2	10.0	6.9
1911	61.9	8.7	8.4	4.6	10.6	5.8
1907	59.4	10.6	8.2	4.8	11.2	5.8
1903	61.4	9.8	7.6	4.3	11.5	5.5

* Listed separately in 1937.

That the tax burden imposed by cities has been increasing much more rapidly than population is readily seen when one notes the change in the per capita amounts collected from different sources over a period of years.

PER CAPITA RECEIPTS FROM DIFFERENT SOURCES

Year	Total	The General Property Tax	Other Taxes	Special Assessments	Subventions and Grants, Donations, and Pension Assessments	Earnings of Public Service Enterprises*	Other Revenues
1937	$71.89	$46.91	$5.76	$ .89	$12.77	$....	$5.56
1936	76.83	45.83	6.03	1.21	10.95	8.03	4.78
1935	77.64	46.72	5.26	1.32	12.10	7.37	4.87
1934	72.13	45.17	3.77	1.61	9.71	7.09	4.78
1933	66.88	43.02	2.88	1.59	8.25	6.36	4.78
1932	68.82	45.57	3.24	2.70	5.84	6.42	5.03
1931	70.84	46.90	3.46	3.86	4.79	6.89	4.94
1929	69.63	45.07	4.43	5.01	4.02	6.82	4.28
1927	69.77	46.09	3.95	5.36	3.40	6.67	4.29
1924	58.41	38.59	3.33	3.43	3.12	6.00	3.96
1922	53.57	35.85	2.80	2.58	3.13	4.83	4.38
1919	35.26	23.29	2.68	1.98	1.43	3.61	2.27
1915	30.00	18.73	2.36	2.54	1.26	3.03	2.08
1911	28.07	17.37	2.44	2.35	1.30	2.98	1.63
1907	24.67	14.64	2.63	2.02	1.18	2.77	1.43
1903	21.14	12.98	2.06	1.60	.91	2.42	1.16

* Listed separately in 1937.

MUNICIPAL INDEBTEDNESS

Receipts from sources of revenue may either just pay expenses, more than pay expenses, or fail to pay them. In many cases the administrators of the finances have planned for a surplus but because of a shrinkage in revenue have had to resort to borrowing.

In the calculations of the Census Bureau municipal indebtedness is divided into two distinct groups—funded debt and floating debt. The former includes all obligations represented by formal investments which have a number of years to run and for the redemption of which no assets other than a sinking fund have been specifically designated. The latter, on the other hand, includes such indebtedness as is evidenced by warrants and accounts payable, by short term bonds, etc. The gross indebtedness is, of course, the total amount, while to subtract from this the value of the assets in a sinking fund will indicate the net indebtedness. The following table shows the total indebtedness, the sinking fund assets, and the net indebtedness for certain years. The latest statistics available, for 1931 to 1937, give only net indebtedness.

MUNICIPAL INDEBTEDNESS

(000 omitted)

Year	Funded or Fixed, and Floating Debt	Sinking Fund Assets		Net Debt	
		Amount	Per Capita	Amount	Per Capita
1937..........	$........*	$........*	$....*	$6,401,987	$169.93
1936..........	........*	........*	....*	6,331,516**	168.13
1935..........	........*	........*	....*	6,397,603	170.03
1934..........	........*	........*	....*	6,380,478	169.76
1933..........	........*	........*	....*	6,360,586	169.70
1932..........	........*	........*	....*	6,289,078	166.66
1931..........	........*	........*	....*	6,328,778	159.70
1930..........	7,808,379	1,840,816	47.20	5,967,563	153.02
1929..........	7,233,151	1,703,316	44.45	5,529,835	144.33
1927..........	6,456,781	1,513,273	41.10	4,943,507	134.27
1924..........	5,057,023	1,215,043	34.82	3,481,980	110.09
1922..........	4,332,114	1,051,468	31.27	3,280,645	97.57
1919..........	3,352,688	811,516	25.93	2,541,172	81.18
1915..........	2,866,008	620,102	21.50	2,245,906	77.86
1911..........	2,305,059	496,230	11.52	1,808,828	67.52
1907..........	1,657,320	362,441	15.68	1,808,878	56.04
1903..........	1,223,101	290,096	13.90	933,004	44.71

* Not available for years 1931 to 1937.
** Exclusive of floating debt.

IMPROVEMENT IN THE BOND MARKET

An improvement in the demand for municipal securities since 1933 is indicated by the table next page which shows the aggregate disposals of long-term obligations by states and municipalities for the first ten months of each year for a series of years.

FEDERAL EMERGENCY ADMINISTRATION OF PUBLIC WORKS

The table showing municipal bond issues does not include the extension grants made to municipalities for public-works projects by the Federal Emergency Administration of Public Works. This agency was created by the National Industrial Recovery Act which became effective June 16, 1933. Under Title II of this Act, authority was granted to the Administrator to furnish grants, not subject to repayment, for 30 per cent of the total expenditures incurred for the payment of labor and material costs on approved public-works projects. Moreover, the agency was authorized to accept 4 per cent general obligation or revenue bonds of the mu-

MUNICIPAL BOND ISSUES

(000 omitted)

Year	Total First Ten Months	Year	Total First Ten Months
1940	$ 954,593	1926	$1,149,105
1939	956,386	1925	1,174,724
1938	800,606	1924	1,280,504
1937	769,778	1923	850,952
1936	955,500	1922	990,188
1935	973,869	1921	868,392
1934	725,660	1920	570,109
1933	392,580	1919	581,871
1932	701,938	1918	245,789
1931	1,156,129	1917	402,828
1930	1,211,857	1916	402,548
1929	1,055,135	1915	434,829
1928	1,094,074	1914	423,171
1927	1,297,029	1913	327,902

Source: *Commercial and Financial Chronicle.*

nicipalities as security for the loan portion of the allotment. In 1934 Congress authorized the Reconstruction Finance Corporation to purchase marketable securities from the Public Works Administration and provided that moneys realized by the Public Works Administration from such sales might be used for making additional loans, but not grants, in aid of non-Federal public-works projects under Title II of the N. I. R. A.

In addition to the program of public works administered under Title II of the National Industrial Recovery Act, the Public Works Administration has been carrying on a separate program pursuant to the Emergency Relief Appropriation Act of 1935. Under the latter act the amount of the grant has been fixed by administrative determination at 45 per cent of the cost of the project, with a corresponding reduction in the amount to be furnished by the applicant. Provision was made under this act for the sale of bonds acquired as collateral for municipal loans either on the open market or to the Reconstruction Finance Corporation, the proceeds to be used only for the making of loans. In practice the sales have been confined to the Reconstruction Finance Corporation which, in turn, sells the securities on the open market. A substantial profit has been derived from this financing, but in recent months municipalities have found it advantageous to dispose of an increasingly large number of issues locally.

The Public Works Administration since its creation has pledged itself to buy approximately $1,000,000,000 worth of bonds. Because of recent large withdrawals, this commitment has been greatly reduced, and a much smaller amount has actually been delivered. The major portion of the amount acquired by the Public Works Administration has been placed with the Reconstruction Finance Corporation and resold to the general public. Total allotments for all non-Federal projects for the years 1933 to 1937, inclusive, totaled $1,450,952,783. Of this amount, $592,325,453 consisted of loans and $858,627,330 was in grants.

TAX DELINQUENCY

Tax delinquency is a natural phenomenon of a business depression. And a rising trend of tax delinquency inevitably cripples municipal functions and weakens municipal credit. Dun and Bradstreet has made a study of the trend of median year-end tax delinquency in 150 cities of over 50,000 population for the period from 1930 to 1939. The following percentages show the median delinquency on the current tax levy at the end of each fiscal year:

1930	1931	1932	1933	1934	1935	1936	1937	1938	1939
10.15%	14.60%	19.95%	26.35%	23.05%	18.0%	13.9%	11.3%	10.7%	9.25%

These figures show a substantial gain in collections since 1933; and delinquency in 1939 was lower than it was in 1930. Only fragmentary data are available for 1940, but it is believed that little change has occurred.

DEBT DEFAULTS

Heavy tax delinquency in recent years naturally resulted in a large number of defaults. The *Bond Buyer* estimated, with certain reservations, that 522 cities and towns were in default on their bonds on Nov. 1, 1940. This represents a substantial reduction from the previous year when 597 incorporated places were in default. The following states, according to the *Bond Buyer,* had the largest number of defaults:

Florida	118	Oklahoma	32
North Carolina	68	New Jersey	19
Texas	65	Colorado	17
Michigan	39	Ohio	15

It is significant to note that two states—Florida and North Carolina—which rank high in the number of defaults, also had the largest increases in local indebtedness between 1912 and 1932, the percentages being 2,779.01 and 1,300.8 respectively. The indebtedness of Maine during the same period increased only 73.2 per cent, while that of Massachusetts increased only 99.2 per cent. Maine had three incorporated places in default in 1940 and Massachusetts had none.

While no data are available regarding the volume of municipal bonds in default, it can reasonably be stated that the volume of such defaults has declined during the past year.

DEBT ADJUSTMENT LEGISLATION

For the purpose of aiding municipalities which are in default on their obligations, various states have recently passed state receivership and debt adjustment acts. Boards or commissions have been established to supervise local indebtedness in general, to supervise the refunding of municipal bonds, and to act as receivers in event of failure to meet debt service.

A Federal Municipal Bankruptcy Act was enacted May 24, 1934. This act, which was declared unconstitutional by the Supreme Court of the United States in May, 1936, was designed to enable any taxing district, with the consent of its creditors and the approval of a Federal District Court, to adjust its debt structure. According to the *Bond Buyer,* only 27 cities, one county, one school district, 41 irrigation districts, and one road district filed petitions under the Municipal Bankruptcy Act during the two years which the law was in effect.

On Aug. 16, 1937, President Roosevelt signed a new Municipal Bankruptcy Act designed to replace the original measure which was declared unconstitutional. The present law is similar in its provisions to the invalidated law. It provides a procedure whereby insolvent taxing agencies, such as local drainage, levee, irrigation, road, and sewer districts, as well as towns, boroughs, and municipalities, may effect compositions with their creditors. These compositions would be approvable only when the districts or agencies filed voluntary proceedings in bankruptcy accompanied by plans approved by 51 per cent of all the creditors of the district or town. The plan of composition can not be confirmed unless accepted in writing by creditors holding at least 66 2/3 per cent of the aggregate amount of the indebtedness of the petitioning district or taxing agency, unless the judge is satisfied that the taxing district was authorized by law to carry out the plan and there had been a finding by the court that the plan was fair, equitable, and for the best interests of the creditors. The jurisdiction conferred by the act terminated June 30, 1940, but it was extended, with certain amendments, to June 30, 1941. One of the amendments extended the coverage of the law to counties and parishes. According to the *Bond Buyer,* 210 municipalities have filed petitions under the 1937 Federal Municipal Bankruptcy Act.

INCOME TAXES

By Lucy Winsor Killough
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FEDERAL INCOME TAX

Revenue Acts.—The Revenue Act of 1940 was approved by the President on June 25 and the Second Revenue Act of 1940 was approved on Oct. 8. Both of these acts made important changes in the federal income tax laws.

Personal Income Tax.—The provisions concerning personal income taxation were contained in the earlier law. The personal exemptions were lowered from $1,000 to $800 for single persons and from $2,500 to $2,000 for married persons. No change was made in the exemption of $400 for each dependent. The normal tax rate of 4% was not changed. The amount of normal tax payable, however, will be greater because the lower exemptions will add new taxpayers to the rolls and will increase the amounts due from existing taxpayers. The surtax rates on that portion of surtax net incomes in excess of $100,000 were unchanged. The surtax rates on surtax net incomes over $6,000 and not over $100,000 were increased. These increases were greatest in the middle brackets. Sample surtax rates under the 1938 and the 1940 laws are shown below:

	1938	1940
In excess of $6,000 and not in excess of $8,000	5%	6%
In excess of $14,000 and not in excess of $16,000	9%	15%
In excess of $44,000 and not in excess of $50,000	27%	40%
In excess of $90,000 and not in excess of $100,000	55%	56%
In excess of $1,000,000 and not in excess of $2,000,000	73%	73%
In excess of $5,000,000	75%	75%

Corporate Income Taxes.—Two kinds of taxes on corporate income were passed in 1940—increased rates on ordinary corporate income and a tax on excess profits. The rates on ordinary corporate income were raised in the first revenue act of 1940 by an increase in the normal tax and an additional 10% defense tax. The second act raised further the rates on corporate incomes of $25,000 and over. As a result of both acts together the rates have become 14.85% on the incomes of corporations with taxable net incomes of not over $5,000, 16.5% on those with incomes from $5,000 to $20,000, 18.7% on those with incomes from $20,000 to $25,000, and 24% on corporations with taxable net incomes above $25,000.

The new excess profits tax was part of the Second Revenue Act of 1940. The rates upon "adjusted excess profits net income" are progressive and range from 25% on such incomes of less than $20,000 to 50% on excess profits in excess of $500,000. After a specific exemption of $5,000 "excess profits net income" may be computed in either of two ways—net income or invested capital. If the net income method is chosen a credit is allowed of 95% of the average net income for 1936-1939 with adjustments for net capital additions or reductions. If the invested capital method is chosen, the allowed credit is 8% of the average invested capital in the taxable year. In the interest of national defense, special provision is made permitting the amortization of "emergency facilities" in 60 months.

Revenue from Federal Tax.—Revenues from both personal and corporate income taxes were slightly less in the fiscal year ended June 30, 1940 than in the preceding year. Personal income tax collections declined somewhat more than corporate income tax collections. Total income tax collections in 1939-40 were about 2% below those of 1938-39. The proportion of all Federal taxes from these sources declined from 39.1% in 1938-39 to 37.0% in 1939-40. Comparisons for the past five years are as follows:

FEDERAL INCOME TAX COLLECTIONS

Fiscal Year	(In Thousands of Dollars)			Per Cent of All Federal Taxes* from Income Tax
	Corporation Tax	Personal Tax	Total Tax	
1939–40...........	1,120,582	982,017	2,102,599	37.0
1938–39...........	1,122,541	1,028,834	2,151,375	39.1
1937–38...........	1,299,932	1,286,312	2,586,244	43.0
1936–37...........	1,056,923	1,091,741	2,148,664	41.8
1935–36...........	738,522	674,416	1,412,938	36.2

* Customs collections and internal revenue taxes.

STATE INCOME TAXES

Louisiana and Mississippi.—The year 1940 was not an important one in the matter of state income tax legislation. Only eight state legislatures met in regular session and special sessions were few and brief. No new state income tax laws were enacted. Louisiana and Mississippi increased their personal income tax rates. In Louisiana the rate range of 2% to 6% was not changed but the brackets were lowered and the maximum rate now applies to income over $8,000 instead of over $50,000. Louisiana also enacted a law providing for an additional 5% tax on incomes over $5,000 from certain speculative transactions in land. In Mississippi the former rates from 3% to 6½% were increased to range from 3% to 8%. The maximum rate now applies to incomes over $10,000 instead of $15,000.

Louisiana and Mississippi also increased their corporate income rates. The flat 4% rate in Louisiana was raised to 6% and the additional 5% tax on income from certain speculative transactions was applied to corporate as well as to personal incomes. In Mississippi the former rate of from 3% to 6½% was increased to 3% to 8% and the maximum now applies to all incomes over $10,000 instead of $15,000. Mississippi also repealed its $1,000 exemption for corporations.

The present status of state income taxes is as follows: 32 states and the District of Columbia are taxing both personal and corporate income. Two of these—Ohio and Michigan—tax income from intangibles only. The Tennessee personal income tax is on intangibles only but the corporate income tax is on all corporate income. Delaware, New Hampshire, and West Virginia tax personal income only. The New Hampshire tax is on income from intangibles only. In 28 of the 35 personal income tax states and in the District of Columbia the rates are progressive. Connecticut and Pennsylvania tax only corporate income. Altogether 37 states and the District of Columbia levy some form of net income tax.

Corporation Rates.—Twenty-eight states and the District of Columbia tax the income of corporations at flat rates ranging from one and one half per cent to seven per cent (not including Oregon because of the personal property tax offset). Six states apply graduated rates to corporate incomes; of these the highest rate is eight per cent. New York state levies a tax of four per cent on the incomes of unincorporated businesses.

Productivity of State Income Taxes varies greatly among the separate states. Comparisons between the absolute figures are of limited

DIGEST OF STATE PERSONAL INCOME TAX PROVISIONS

State	Year First Effective	Personal Exemption			Rate of Tax (per cent)	Amount of Taxable Income in Excess of which Maximum Rate Applies
		Single	Head of Family	Dependents		
Alabama	1933	$1,500	$3,000	$300	1½–5	$ 5,000
Arizona	1933	10[1]	20[1]	4[1]	1–4½	9,000
Arkansas	1929	1,500	2,500	400	1–5	25,000
California	1935	1,000	2,500	400	1–15	250,000
Colorado	1937	1,000	2,500	400	1–6[2]	10,000
Delaware	1917	1,000	2,000	200	1–3	10,000
District of Columbia	1939	1,000	2,500	400	1–3	20,000
Georgia	1929	1,000	2,500	400	1–7	20,000
Idaho	1931	700	1,500	200	1½–8	5,000
Iowa	1934	10[1]	20[1]	5[1]	1–5	4,000
Kansas	1933	750	1,500	200	1–4	7,000
Kentucky	1936	1,000	2,500	400	2–5	5,000
Louisiana	1934	1,000	2,500	400	2–6[3]	8,000
Maryland	1937	1,000	2,000	400	2½–6[4]	......
Massachusetts	1916	2,000[5]	2,500[5]	400[5]	1½–6[6]	......
Michigan	1939	7[1]	7[1]	...	6[7]	......
Minnesota	1933	10[1]	30[1]	5[1]	1–10	20,000
Mississippi	1912	1,000	2,500	400	3–8	10,000
Missouri	1917	1,000	2,000	200	1–4	9,000
Montana	1933	1,000	2,000	300	1–4	6,000
New Hampshire	1923	200	200	...	[8]	......
New Mexico	1933	1,500	2,500	200	1–4	100,000
New York	1919	1,000	2,500	400	2–7[9]	9,000
North Carolina	1921	1,000	2,000	200	3–7	10,000
North Dakota	1919	500	1,500	200	1–15	15,000
Ohio	1931	.....	.....	...	5[10]	......
Oklahoma	1908	850	1,700	300	1–9	8,000
Oregon	1930	800[11]	1,500[11]	300[11]	2–7[12]	4,000
South Carolina	1922	1,000	1,800	200	2–5[13]	6,000
South Dakota	1935	6[1]	12[1]	2[1]	1–8	318,000
Tennessee	1929	.....	.....	...	4-6[14]	......
Utah	1931	600	1,200	300	1–5	4,000
Vermont	1931	1,000	2,000	250	2–4[15]	......
Virginia	1843	1,000	2,000	200	1½–3	5,000
West Virginia	1935	1,000	2,000	300	1–4	3,000
Wisconsin	1911	8[1]	17.50[1]	4[1]	1–7[16]	12,000

[1] Deduction from tax.

[2] Additional 2% surtax without exemption on interest from securities.

[3] Additional 5% tax on incomes over $5,000 from certain speculative transactions in land.

[4] 2½% of ordinary income and 6% of investment income, deductions and exemptions from all income on basis of 2½% rate.

[5] Exemptions apply to earned income.

[6] Earned income and annuities 1½%; capital gains 3%; interest and dividends 6%; all plus an additional 10% of tax.

[7] On income from certain intangibles only—tax not to be less than .1% nor more than .3% of face value of taxed intangibles.

[8] Average rate on real estate; applies only to dividends and interest.

[9] Plus an "emergency" 1% which has been extended for another year.

[10] On income from intangibles only.

[11] Exemptions given apply only to normal tax, surtax exemptions are $500 for single persons and $800 for heads of families.

[12] Plus a 2% surtax on income from intangibles, taxpayer's combined normal and surtax not to exceed 8% of net income.

[13] Additional tax of from 3 to 5% on income over $500 from interest and dividends—to apply to 1940 and repealed thereafter.

[14] On dividends and interest; 4% on dividends when at least 75% of corporate property assessable in Tennessee, 6% on other dividends and interest.

[15] 2% on earned income, 4% on interest and dividends.

[16] Plus a surtax of one sixth of the tax after certain exemptions and an "emergency" surtax of 60% of the normal tax.

value because of differences in the sizes and wealth of the states. New York leads with $148,000,000 followed by California with $40,000,000, Pennsylvania with $23,000,000, Massachusetts with $22,000,000, Wisconsin with $17,000,000, and North Carolina and Minnesota each with $11,000,000. In

DIGEST OF STATE CORPORATION INCOME TAX PROVISIONS

State	Year First Effective	Kinds of Corporations Exempt	Amount of Income Exempt (Dollars)	Rate of Tax (per cent)
Alabama	1933	Insurance	....	3[1]
Arizona	1933	Insurance	....	1–5[2]
Arkansas	1929	Foreign Insurance	$1,500	2
California	1929	Insurance	....	4
Colorado	1937	Insurance	....	4[3]
Connecticut	1915	Insurance, public utilities	....	2
District of Columbia	1939	Insurance, banks	....	5
Georgia	1929	Insurance, banks	....	5½
Idaho	1931		....	1½-8[4]
Iowa	1934	Insurance, banks	....	2
Kansas	1933	Banking	....	2
Kentucky	1936	Insurance, banks	....	4
Louisiana	1934	Banks	....	6[5]
Maryland	1937	Banks	....	1½
Massachusetts	1919	Insurance, public utilities	....	2½[6]
Michigan	1939	Insurance, transportation and communication, banks	$7.00[7]	6[8]
Minnesota	1933	Banks, mines	$1,000	6
Mississippi	1912	Banks	....	3–8[9]
Missouri	1917	Express, insurance, banks	....	2
Montana	1917		....	3
New Mexico	1933	Insurance, banks	$1,000	2
New York	1917	Real estate, banks, public utilities, insurance	....	6[10]
North Carolina	1921		....	6
North Dakota	1919	Insurance, banks	....	3–6[11]
Ohio	1931		....	5[12]
Oklahoma	1931		....	6
Oregon	1930	Insurance, real estate	....	8[13]
Pennsylvania	1935	Insurance, banks	....	7
South Carolina	1922	Insurance	....	4½
South Dakota	1935	Express, mining	....	1–8[14]
Tennessee	1929		....	3¾
Utah	1931	Insurance	....	3
Vermont	1931	Public utilities, insurance, banks	....	3
Virginia	1927	Public utilities, insurance, banks	....	3
Wisconsin	1911	Railroads, car, insurance, mutual savings banks	....	2–6[15]

[1] Banks taxed by an excise tax "measured" by net income at 6%.

[2] Maximum rate applies to all income over $6,000.

[3] Banks at 6%.

[4] Maximum rate applies to all income over $5,000.

[5] Additional 5% tax on incomes over $5,000 from certain speculative transactions in land.

[6] Plus an additional 10% of tax in 1940.

[7] Deduction from tax.

[8] On income from certain intangibles only—tax not to be less than .1% nor more than .3% of face value of taxed intangibles.

[9] Maximum rate applies to all income over $10,000.

[10] Also a 4% tax on the income of unincorporated businesses.

[11] Maximum rate applies to all income over $15,000.

[12] On income from intangibles only.

[13] Offset for personal property tax up to 50% of corporate excise.

[14] Banks at 3%; maximum rate applies to income over $318,000.

[15] Plus a surtax of one sixth of the normal tax less $75; maximum rate applies to all income over $6,000.

each of the other states collections were less than $10,000,000. In most of the states the collections in 1940 were very little different from those of 1939. Comparable data for the two years were available for 31 states. In 11 of these states collections were somewhat larger in 1939 and in 20 states they were larger in 1940. In four states—New York, Wisconsin, Oregon, and Massachusetts—more than 15 per cent of state collected taxes were derived from income taxes. In 11 states less than 5 per cent were derived from income taxes. The differences in income tax yields among the states can not be attributed to any single factor. The rates, exemptions, number and size of brackets, and efficiency of administration vary widely among the states.

All of the states do not make separate reports of personal and corporate income tax collections. For the reporting states which tax both personal and corporate income the total collections from personal income taxes were materially greater than from corporate income taxes. This was due to a considerable extent to the large personal income tax collections in New York and Massachusetts. In

REVENUE FROM STATE INCOME TAXES

State	Income Tax Collections (In Thousands of Dollars)			Income Tax Revenues Returned to Local Governments (thousands of $'s)	Per Cent of Total State Collected Taxes Derived from Income Taxes[1]	Year Ending
	Personal	Corporate	Total			
Alabama	.....	.....	1,911	0	4	Sept. 30, 1939
Arizona	435	817	1,363[2]	0	7	June 30, 1940
Arkansas	.....	.....	724	0	2	June 30, 1940
California	19,572	20,597	40,169	0	12	June 30, 1940
Colorado	1,056	437	1,493	[3]	4	June 30, 1939
Connecticut	0	3,636	3,636	471	6	June 30, 1940
Delaware	1,662	0	1,662	0	13	June 30, 1940
District of Columbia	1,319	956	2,275	...	5[4]	June 30, 1940
Georgia	2,501	3,167	5,668	0	11	June 30, 1940
Idaho	.....	.....	1,410	0	11	Dec. 31, 1939
Iowa	3,973	915	4,888	2,700[5]	7	June 30, 1940
Kansas	1,315	754	2,069	0	5	June 30, 1940
Kentucky	2,351	1,945	4,296	0	8	June 30, 1940
Louisiana	2,414	2,736	5,150	0	6	June 30, 1940
Maryland	577	297	874	[6]	2	Sept. 30, 1939
Massachusetts	20,292	2,273[7]	22,565	16,711	16[8]	Nov. 30, 1940
Michigan		First collections to be made in 1941				
Minnesota	.....	.....	11,108	[9]	12	June 30, 1940
Mississippi	.....	.....	1,778	0	5	June 30, 1940
Missouri	.....	.....	6,181	0	7	Dec. 31, 1939
Montana	543	688	1,231	443	3	June 30, 1940
New Hampshire	585	0	585	[10]	4	June 30, 1940
New Mexico	.....	.....	444	0	3	June 30, 1940
New York	108,734[11]	39,529	148,263	26,543	25	June 30, 1940
North Carolina	3,278	8,657	11,934	0	14	June 30, 1940
North Dakota	.....	.....	589	0	4	June 30, 1940
Ohio	.....	.....	6,524	[12]	3	Dec. 31, 1939
Oklahoma	2,424	3,918	6,342	111	10	June 30, 1940
Oregon	.....	.....	5,528	0	17	June 30, 1940
Pennsylvania	0	23,777	23,777	0	7	May 31, 1940
South Carolina	1,459	2,007	3,466	0	10	June 30, 1940
South Dakota	.....	.....	704	0	4	June 30, 1940
Tennessee	1,670	1,562	3,232	427	6	June 30, 1940
Utah	803	769	1,572	1,176	8	June 30, 1940
Vermont	.....	.....	806	0	7	June 30, 1940
Virginia	1,943	2,690	4,633	0	8	June 30, 1940
West Virginia	1,650	0	1,650	0	3[13]	June 30, 1940
Wisconsin	8,532	9,148	17,680	6,914	18	June 30, 1940

[1] Total state tax collections used in computing this column taken from *State Tax Collections: 1940*, Bureau of the Census, United States Department of Commerce, November 9, 1940.

[2] Includes $111 thousand additional, interest, penalties, etc.

[3] 65% to state and 35% to local units.

[4] Per cent of general revenues.

[5] Approximate.

[6] Local apportionment of income tax not separately reported.

[7] 1939.

[8] Part of 1940 tax collections estimated.

[9] Entire amount less expenses returned to towns and cities of origin

[10]

[11] Including 4,014 thousand on unincorporated businesses.

[12] Entire amount less expenses.

[13] 1939.

about half the states the revenue from corporate income taxes was greater than from personal income taxes.

Sharing of Income Taxes.—It is difficult to define precisely the extent to which state income tax collections are shared with local governments. In about a third of the income tax states some of the income tax collections are turned over directly to local governments. New York distributes the largest sum to the localities but a number of states distribute a larger proportion of their total collections. In Minnesota, New Hampshire, and Ohio the entire income tax collections less expenses are turned over to local governments. In several states large proportions of income tax revenues are spent directly by the states in support of services which might otherwise be locally supported. The most noteworthy of these services are education and relief.

LAND AND PROPERTY TAXES

By Frank Bain

Financial Analysis Section, Farm Credit Administration

LEGISLATION

During the first eleven months of 1940, regular legislative sessions were held in eight states and special sessions in ten states. Some of the special sessions were called for purposes other than the consideration of tax legislation. A very scant number of tax laws was enacted this year.

LEVY

The several bills introduced relative to property taxes sought to levy increased rates, levy taxes for new purposes, or to repeal taxes levied for certain purposes. Among those introduced, but not passed, was a New Jersey bill which provided for a gradual repeal of taxes on improvements and personal property (A.B. 126). In Rhode Island a measure was considered providing for a tax on property taken by eminent domain and for a tax of 50 per cent on any gains resulting from taking of property by eminent domain (S.B. 567). In this state there also was introduced a proposal allowing cities and towns to tax tangible personal property of telephone and telegraph companies (S.B. 68).

Failing enactment were several bills seeking levies or repeal of levies on property for school purposes. Among them was a bill allowing counties of Mississippi to levy an *ad valorem* tax for free text books (H.B. 19). A proposal for repeal of a one-mill school levy of South Carolina failed of passage (S.B. 1598).

Kentucky enacted a law authorizing county boards of education to levy a general tax of not more than the maximum levy for county school districts, increased by not more than the lowest of the sub-district levies, and abolishing special levies of the sub-districts (H.B. 417). Certain counties in levee districts of Mississippi may levy taxes not exceeding one mill for advertising purposes.

TAX DELINQUENCY

Villages in New York, having unsold tax-delinquent properties, may issue bonds in anticipation of tax payments (S.B. 1515). The interest rate on unpaid taxes, due before Jan. 1, 1934, on real estate in the City of New York has been reduced from ten per cent to seven per cent (S.B. 1181).

LIENS

Fire and water districts of Rhode Island are permitted to enter liens on real estate for non-payment of taxes (S.B. 43).

EXEMPTIONS

A number of bills was introduced in the legislatures of several states providing for exemption of a variety of properties. In Kentucky a bill (H.B. 431) sought to exempt property of patriotic societies, and another bill proposed to raise to $750 the property exemption of persons with families (H.B. 423). It was proposed in Mississippi to exempt fertilizer mixing plants owned by cooperatives (S.B. 144), and in South Carolina to exempt homesteads up to the value of $1,000 (H.B. 1442). A bill was approved in New Jersey limiting the homestead exemption to persons actually residing within the taxing district (A.B. 154).

CORPORATION AND BANK TAXES

By Frank Bain

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FEDERAL TAXES

Congress enacted in 1940 two revenue laws which are cited as the Revenue Act of 1940 (Public 656, 76th Congress) and the Second Revenue Act of 1940 (Public 801, 76th Congress). The first law, enacted in June, was designed to provide for the expenses of national preparedness by raising revenue and issuing bonds, to provide a method for paying for such bonds, and for other purposes. Accordingly, the tax rates were increased and a "defense tax" was superimposed upon the amounts of the several taxes payable by corporations. The second law, enacted in October, developed not only a new excess-profits tax, but also increased further (over the increases provided in the first Revenue Act of 1940) the rates on corporate normal-tax net income in excess of $25,000. Under the present law, a corporation may be subject to several tiers of taxes: normal income tax, tax on improper accumulation of surplus, capital stock tax, defense tax, and two excess-profits taxes.

CORPORATION NORMAL INCOME TAX

Under Title I of the Revenue Act of 1940 the normal income tax rates were increased one per cent on domestic and resident foreign corporations. Domestic corporations earning a normal-tax net income of $25,000 or less are now taxed at 13.5 per cent on the first $5,000 bracket of net income, 15 per cent on the next bracket of $15,000, and 17 per cent on the next bracket of $5,000, exclusive of the defense tax.

The rates on domestic corporations earning more, or slightly more, than $25,000 in normal-tax net income were increased by each of the Revenue acts, and now stand at the levels shown by the accompanying table. The rates on various brackets of income shown for domestic corporations apply also to domestic banks and trust companies.

RATES OF NORMAL INCOME AND DEFENSE TAXES

On resident foreign corporations, as well as on mutual investment companies, the normal-tax net income rate was increased twice during the year. Now it stands at 22.1 per cent, which is applicable to any amount of income. When the defense tax is added, the total rate is 24 per cent. As shown by the table above, this corresponds with the rate for those domestic corporations which earn considerably more than $25,000 in normal-tax net income.

As before, non-resident foreign corporations are taxable on interest, dividends, rents, salaries, wages, premiums, annuities, or other annual or periodical gains received from sources within the United States. The Revenue Act of 1940 levels the rate to 15 per cent on all elements of total income, whereas the previous law levied a rate of 10 per cent on dividends. The rate will not apply to

Corporation	Amount of Normal-Tax Net Income	Income Tax Rate (Per Cent of Income)			Defense Tax Rate (Per Cent of Income Tax Rate)[a]	Total Rate (Per Cent)
		Before 1940	First Act of 1940	Second Act of 1940		
Domestic corporation	First $ 5,000	12.5	13.5	...	1.35	14.85
	Next 15,000	14.0	15.0	...	1.50	16.50
	Next 5,000	16.0	17.0	...	1.70	18.70
	Over 25,000	18.0	19.0	22.1	1.90	24.00
	Slightly over 25,000	$3525, plus 32 per cent	$3775, plus 33 per cent	$3775, plus 35 per cent	b	....
Resident foreign corporation	Any amount	18.0	19.0	22.1	1.90	24.00
Mutual investment companies	Any amount	16.5	19.0	22.1	1.90	24.00

[a] Ten per cent of income tax rate of First Revenue Act of 1940.
[b] Ten per cent of amount of income tax computed under First Revenue Act of 1940.

corporations of those countries (Canada and Sweden) which are protected by tax treaties.

The basic rate of 16.5 per cent on normal-tax net income of insurance corporations continues unchanged. No changes in normal income tax rates were effected for personal holding companies or for corporations improperly accumulating surplus.

CAPITAL STOCK TAX

The rate of the capital stock tax was changed from $1.00 to $1.10 upon $1,000 of adjusted declared value of capital stock. The increase of ten cents is a defense tax, which is due for the year ended June 30, 1940, and for four succeeding years. The capital stock tax is levied upon domestic and resident foreign corporations, excepting insurance companies, common trust funds, and corporations which are exempt from the normal income tax.

EXCESS-PROFITS TAX (OLD)

This tax is referred to here as the (old) excess-profits tax to distinguish it from the new tax provided for in the Second Revenue Act of 1940. There was no change made in 1940 in the provisions of the (old) excess-profits tax law, except that the defense tax is added to the tax otherwise computed. The basic tax rate of 6 per cent on that portion of net income which is in excess of 10 per cent and not in excess of 15 per cent of declared capital stock value will total 6.6 per cent with the defense tax, and the 12 per cent rate on that portion of net income which is in excess of 15 per cent of declared capital stock value will total 13.2 per cent with defense tax included. This tax is payable only by those corporations which pay the capital stock tax. Corporations which are exempt, mentioned in the preceding section, from the capital stock tax, also are exempt from this excess-profits tax.

DEFENSE TAX

The defense tax is one which is levied upon the amount of another tax. Its rate is 10 per cent of the amount of a tax otherwise computed. It has the effect of increasing the total tax rate without presumably complicating calculations. This tax is superimposed upon: normal income tax of domestic and resident foreign corporations, and of non-resident foreign corporations, excepting Canadian and Swedish corporations; surtax for improper accumulation of income; surtax of personal holding companies; capital stock tax; and excess-profits tax of pre-1940 vintage.

In the case of domestic corporations earning over $25,000 of net income, as well as in the case of resident foreign corporations, it is observed that the defense tax is 10 per cent of the normal income tax rate (19 per cent) established by the Revenue Act of 1940 and not 10 per cent of the rate (22.1 per cent) established by the Second Revenue Act of 1940.

The life of the defense tax is five years. Effective dates vary according to class of corporation or type of tax to which the defense tax applies. With respect to normal income tax of domestic and resident foreign corporations the effective date is Jan. 1, 1940; for non-resident foreign corporations, June 26, 1940; on the capital stock tax, year ended June 30, 1940; on excess-profits tax, year ended after June 30, 1940. Although the life of the defense tax definitely is limited to five years, the Revenue Act of 1940 does not mention expiration dates for any of the other taxes.

EXCESS-PROFITS TAX OF 1940

The Second Revenue Act of 1940, bearing Titles I-VII, levies under Title II the Excess-Profits Tax of 1940. Effective for the taxable years beginning after December 31, 1939, and having no expiration date, the tax falls on all corporations except those specifically exempt.

Corporations existing before Jan. 1, 1940 may choose the base period income method or the invested capital method for determining the amount of taxable excess profits. Under the base period income method the taxable excess for any taxable year for a domestic corporation would be the total adjusted net income, minus credits of 95 per cent of the average base period (1936-1939) net income, plus 8 per cent of net equity capital addition, and minus 6 per cent of net equity capital reduction. The latter two credits are not available to a resident foreign corporation. Under the invested capital method, the taxable excess would be the total adjusted net income, minus a credit of 8 per cent of average invested capital. Invested capital base consists of all equity capital (contributions of money, property and earnings), plus one-half of the principal of borrowed capital (evidences of indebtedness), and minus certain inadmissible assets. Under both methods there is an exemption of $5,000 of the taxable year's net income.

In addition to the credits, and the exemption, mentioned above, it is necessary to consider various adjustments of income, which are the deductions allowed, the included and excluded items of income, and the abnormalities in income, before arriving at the amount of adjusted excess-profits net income. These adjustments may apply to the base period income and to the taxable year's income under the two available methods of computation, as is shown by the table next page. The exclusion of abnormal items of income suggests that the tax is aimed principally at normally recurring earnings.

ADJUSTMENTS IN INCOME FOR DETERMINING TAXABLE EXCESS

Upon determining the amount of excess income, the corporation applies the excess-profit tax rate which is 25 per cent on the first $20,000, 30 per cent on the next $30,000, 35 per cent on the next $50,000, 40 per cent on the next $150,000, 45 per cent on the next $250,000, and 50 per cent on the excess-profits of more than $500,000.

Among the corporations exempt from the excess-profits tax are various labor and farmers' cooperatives, societies, clubs, foreign personal holding companies, mutual investment companies, investment companies under Investment Company Act of 1940, personal holding companies, non-resident foreign corporations, domestic corporations deriving most of their income from sources outside the United States, mail carrying aircraft corporations (income only from transportation of mail is exempt), and domestic corporations mining strategic minerals (only the income allocable to United States is exempt).

STATE CORPORATION TAXES

Domestic and foreign corporations are required by Kentucky to pay a fee

Income or Loss Items	Base Period Adjustments	Current Tax-Year Adjustments	
		Income Method	Invested Capital Method
Income included:			
Long-term gains and losses	x	x	x
Debt retirement income—debts outstanding over eighteen months	x	x	x
A.A.A. refunds		x	x
Bad debt recoveries		x	x
Dividends from domestic corporations	x	x	x
Dividends from foreign corporations		x	x
Deduction allowed:			
Income tax (except surtax on improper accumulation of surplus)	x	x	x
Deductions not allowed:			
Long-term losses	x	x	x
Debt retirement losses	x		
Losses from fire, theft, demolition, etc.	x		
Processing tax repayments to vendees	x		
Abnormal judgments, decrees, etc.	x		
Abnormal development costs	x		
Abnormal income allocable to past or future years			
Claims, judgments, etc.		x	x
Contracts, extending over one year		x	x
Research, patents, formulae, extending over one year		x	x
Change in accounting period		x	x
Dividends received, foreign corporations		x	
Terminated leases		x	x

of $5 for filing and recording a statement designating an agent, and for filing a statement showing a change of agent or location of office (H.B. 186); and foreign corporations are now required to file certified copies of their articles of incorporation and to pay a fee of $25 for filing. Beginning in 1941, each foreign corporation must file annually a certificate of existence and pay therefor a fee of $1.00 (H.B. 187). For purposes of the franchise tax, New York defines "entire net income" of any bridge commission authorized to construct bridges across international boundaries (S.B. 1645). The scope of the Virginia franchise tax law is broadened to include sewage disposal and water purification companies (H.B. 396).

ESTATE AND INHERITANCE TAXES

By Harold R. Enslow

New York State Department of Labor

GENERAL

There were relatively few important developments in the estate and inheritance tax field in the calendar year 1940. Fewer states than usual adopted legislation in this field and the changes in the statutes were for the most part of minor significance. Federal estate tax legislation was not adopted except for the fact that the general defense tax was made applicable in this field as well as to most other Federal taxes.

HELVERING-HALLOCK CASE

A decision of the United States Supreme Court which occasioned a great deal of discussion was that in the case of *Helvering v. Hallock* handed down Jan. 29, 1940. This was to the effect that the gross estate of a decedent must include any property transferred by him by *inter vivos* trust where the agreement of transfer provides that the trust property is to revert to the grantor if the beneficiary should die before the grantor. In those instances where the beneficiary survives the grantor, the trust property is to be included in the gross estate of the grantor as a transfer "intended to take effect in possession and enjoyment at or after his death," because of the reversionary interest retained by the grantor in making the trust.

This was a change from the position formerly taken by the Court in *Helvering v. St. Louis Union Trust Company* (206-US-39). There the Court had stated that when a gift was made in trust with provision that the corpus should revert to the grantor if the beneficiary predeceased him, the corpus was not to be included as part of the grantor's estate if he predeceased the beneficiary.

Helvering v. Hallock has implications not only in the estate tax field but in the gift tax and income tax fields as well.

THE 1940 DEFENSE TAX

To most of the Federal taxes there was added a defense tax amounting to 10 per cent of the tax as otherwise computed. The duration of surtax for defense purposes is to be from July 1, 1940 to June 30, 1945. In the case of the estate tax such defense tax applies to estate of decedents dying after June 25, 1940. This 10 per cent defense tax also is to be added to the gift tax applicable to gifts made after June 25, 1940. In the case of the estate tax, the defense tax is arrived at by taking 10 per cent of the amount of tax computed at the regular rates after deducting the regular credits for the gift tax and state taxes.

The defense tax added to the gift tax is arrived at by taking a proportionate part of 10 per cent of the tax on 1940 gifts represented by taxable gifts made after June 25. For example: if the regular 1940 gift tax were $1,000, and one-half of the taxable gifts in 1940 were made after June 25, the defense surtax on gifts would be one-half of $100 or $50; so the gift tax plus defense tax would amount to $1,050.

LEGISLATION

Alabama by Act No. 593, effective June 28, 1940, defined situs for tax purposes of moneys, credits and intangible personal property. Such taxable items within the state not employed in carrying on business therein by the owner are deemed to be located at the owner's domicile for purpose of death taxation. If no other state subjects such items to taxation their situs may be deemed to be within Alabama. Such treatment by Alabama is made dependent upon reciprocal exemption being accorded by other states.

California made a number of amendments to its gift tax which it seems impracticable to recite here. These were accomplished by Chapter 41 adopted at the special session of 1940.

District of Columbia.—Congress, by House resolution 10,106, added a new section to the District of Columbia statute bearing on the taxation of intangibles of non-residents. The citation is Public Laws 737.

Louisiana adopted a new gift tax, effective July 31, 1940, whose rates range from 2 per cent to 10 per cent. Certain gifts are exempted, *e.g.*, complete exemption for gifts to the U. S., to the State of Louisiana, its political subdivisions, charitable organizations, etc. A $500 exemption is granted on gifts to strangers; a $1,000 exemption on gifts to collateral heirs; and a $5,000 exemption on gifts to direct descendants.

New York, by Chapter 138 of the Laws of 1940, repealed its provisions for credits against the tax on estates of residents and non-residents and extended the "emergency rates" for another year.

Virginia, by Chapter 118 of the Laws of 1940, substituted a number of specific types of governmental, charitable, and fraternal organizations to which transfers of property are exempt; this in place of the general language of the former exemptions in favor of charitable gifts.

AUTOMOBILE TAXES

By Beulah Bailey Thull

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REGISTRATION AND REVENUE

The year 1937 seemed an all time high in the number of motor vehicles registered and the revenue receipts from license fees, as 1938 lagged far behind 1937. Now comes 1939 breaking all records. According to the United States Bureau of Public Roads, 30,615,097 cars were registered in 1939. This was 1,129,417 more than were registered in 1938, and 909,877 more than were registered in 1937. This number of cars registered does not include all on the highway, as there are in addition 394,783 machines publicly owned, making the grand total 31,009,880.

The revenue from the registration fees and certain miscellaneous fees such as operators' and chauffeurs' permits, fines, etc. was $412,494,000 in 1939. This is an increase of $23,669,000 over 1938, and $12,881,000 over 1937. As far as pleasure cars are concerned, the increased revenue is due to increased number of cars, as during the last decade the license fees have become stabilized. In 1921 the average fee was $11.71; in 1930, $13.40; in 1937, $13.45, and in 1939, $13.40. The only state to make a radical change during 1939 was Louisiana, which now has a flat rate fee of $3 on pleasure motor vehicles. However, the same is not true of buses. The special taxes per bus have more than doubled since 1925. In that year the special tax per bus per mile of highway used was $49.24. In 1930 it was $90.87, in 1937, $109.90, and in 1939, $121.10. Alabama enacted in 1940 an entirely new law regulating and taxing motor carriers. The mileage tax on buses ranges from ¼¢ to 1¢ per mile, depending on the seating capacity, and on property carriers, ¼¢ per mile per axle for intrastate hauls, and ⅓¢ per mile per axle for interstate. The axle as a basis automatically increases the tax on six-wheel trucks.

GASOLINE AND OTHER TAXES

When it comes to gasoline consumption and gasoline tax revenue, each year is a new high. For 1939, the gasoline consumption per vehicle was 724 gallons as against 701 gallons for 1938 and 721 gallons for 1937. The revenue to the states for 1939 from motor-fuel tax and some of its adjuncts such as distributors' and dealers' licenses, fines, penalties, etc., was $821,656,000, nearly twice the revenue from registration fees.

In addition to the state revenues from the automotive sources, there are the Federal manufacturers' excise taxes on automobiles, parts and accessories, rubber tires, gasoline and oil. For the fiscal year ended June 30, 1939, this amounted to $329,000,503. For the coming year the revenue will be much greater as, under the defense program, the rate of the Federal tax on gasoline has been increased from 1¢ per gallon to 1½¢, and on the other items ½ of 1 per cent, and in some instances ½¢, making the present rate 3½ per cent of sales price on passenger cars, 2½ per cent on trucks and accessories, 4½¢ per gallon on oil, 4½¢ per pound on inner tubes, and 2½¢ per pound on tires.

This makes the total tax revenue readily accredited to automobiles, $1,563,150,503, or 11 per cent of the total Federal, state and local revenue for 1939. This figure does not include local gas taxes, or license fees, general sales taxes or *ad valorem* taxes. Nineteen states still have an *ad valorem* tax on the full value of a car. Arizona by initiative petition effective Jan. 1, 1941, will, for *ad* *valorem* tax purposes, value a machine at 60 per cent of book value the first year and 25 per cent less for each succeeding year. The tax rate will be the local *ad valorem* rate.

DIESEL OIL

Diesel oil still presents a tax problem. Virginia in 1940 levied a tax of 5¢ a gallon on all liquids other than gasoline used to propel vehicles on the highway. Alabama levied a 6¢ tax, Louisiana 7¢, and the South Carolina law states that all motor fuels other than gasoline are subject to a 6¢ tax. Such fuels can not be used to propel vehicles on the highway without permission from the state. In South Carolina, as in New York, the owner of the motor vehicle so propelled is considered as a distributor for the fuel and as such must make monthly reports to the Tax Commission. New York state has broadened its definition of Diesel fuel to include kerosene, crude oil, and motor fuel used in the operation of an engine of the Diesel type.

REFUNDS

Refunds are still a subject of legislation, although due to the broadening of the field of use of motor vehicle and gasoline taxes there is a growing feeling among non-users that refunds are wrong. The voters of Louisiana rejected a proposal permitting refund for fuel used in boats, airplanes, and farm machinery. Virginia has exempted all gasoline used for purposes other than propelling vehicles on the highway, with the exception of a 3¢ tax on gasoline used in airplanes in intrastate commerce. New Jersey, which taxes gasoline used in motor boats, exempts that used exclusively for Sea Scout training by a duly chartered unit of the Boy Scouts. New Mexico hopes to improve the administration of refunds by the issuing of permits for the same. Mississippi provides for exempting certain street-paving materials and better regulates the handling of gasoline for export. New York has established a precedent for equity before revenue by providing for a refund of the motor vehicle fee less $1, if the license is not used and if application for refund is made within two months after the fee is paid. Also if a person takes out a car license and then fails to get a permit to drive, the license fee minus $2 will be refunded. Mississippi provides for credit on any unexpired part of a license when the vehicle has been destroyed by fire or accident.

SPECIAL LICENSES

With the great increase in the transporting of new cars by trucks, the states are establishing definite "Drive-away in Transit" licenses. Kentucky has a blanket fee of $250 which covers all plates needed. In Louisiana the fee is $100 but additional plates are $3 a set.

PARKING PROBLEMS

With the increased number of cars and use of cars comes increased traffic problems. One hundred cities today are using parking meters. Louisiana provides that municipalities with a population of 12,500 or more may by ordinance provide for parking meters. After three weeks' trial they may be retained by a vote of the people. Rhode Island grants the town council authority to submit to the electorate whether or not they wish parking meters.

LEGISLATION

Louisiana was the only state in session in 1940 that made extensive changes in motor vehicle and gasoline tax laws. The administration of the motor vehicle law was transferred from the Secretary of State to the newly organized Department of Revenue. At the November elections the people adopted a constitutional amendment that prohibits the parishes and municipalities from levying gasoline taxes. Formerly the city of New Orleans levied its own gas tax. To offset this drop in municipal revenue, 1¢ of the gasoline tax revenue is to be divided equally between the general highway fund and the parishes and city of New Orleans and 4¢ is pledged to debt payment. Accompanying the already mentioned $3 flat rate on pleasure cars was a 1¢ increase in the gasoline tax. Since Dec. 6, 1940, the gas tax rate has been 8¢ in Louisiana. Still another amendment makes the state assume the entire cost of construction and maintenance of state highways.

The people of North Dakota approved a constitutional amendment that earmarks all motor fuel and motor vehicle revenue to public highway purposes.

COOPERATION

A stumbling block to good administration and to easy interstate travel and transportation has been the great difference in state laws and in the lack of reciprocal agreements. These obstacles are being gradually overcome by the work of the American Association of Motor Vehicle Administrators, which organization is subdivided into active sectional groups embracing 10 or more states, the Council of State Governments, through the various state committees on interstate cooperation, and the North American Gasoline Tax Conference.

PERIODICAL PUBLICATIONS

American Economic Review
Northwestern University, Evanston, Ill.

Business Week and The Annalist
330 West 42nd Street, New York City.

Commercial and Financial Chronicle
25 Spruce Street, New York City.

Journal of Economics
Harvard University Press, Cambridge, Mass.

Journal of Political Economy
5750 Ellis Ave., Chicago.

Nation's Business
Chamber of Commerce of the United States, Washington, D.C.

Tax Digest
15 East 26th Street, New York City.

Tax Magazine
350 Fifth Ave., New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN TAXPAYERS' LEAGUE, Munsey Bldg., Washington, D.C.

NATIONAL HIGHWAYS ASSN., Bass River, Cape Cod, Mass.

NEW ENGLAND STATE TAX OFFICIALS ASSOCIATION, Room 236, State House, Boston, Mass.

NORTH AMERICAN GASOLINE TAX CONFERENCE, 844-46 Consolidated Bldg., Indianapolis, Ind.

RESEARCH INSTITUTE OF AMERICA, INC., THE, 292 Madison Ave., New York City.

TAX POLICY LEAGUE, 907 Broadway, New York City.

TAX REVISION COUNCIL, 850 E. 58th St., Chicago, Ill.

DIVISION VIII
PUBLIC RESOURCES AND UTILITIES

FEDERAL SURVEYS AND MAPS

By K. T. Adams

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GENERAL

There are numerous activities of the United States Government which require surveys and maps in connection with their other functions. It is not surprising that there are, perhaps, 30 separate agencies which engage in this work in major or minor degree. Maps are the medium by which can best be recorded the natural resources of the earth's surface, the cultural development thereon, and man's relation thereto.

The primary function of certain agencies is mapping and surveying, while certain others engage in no surveying but do occasionally compile and publish maps. Among the former, the Coast and Geodetic Survey establishes the basic geodetic control throughout the country and surveys and publishes charts of the coastal areas of the United States and possessions; the Geological Survey surveys and publishes geological and topographic maps (quadrangles) of the country; the General Land Office surveys the public lands; and the Hydrographic Office surveys and publishes charts of foreign waters.

The Federal Board of Surveys and Maps coordinates the activities of the various agencies engaged in surveying and mapping, and serves in an advisory capacity in other respects. The Board is composed of representatives of the most important of these agencies and monthly meetings are regularly held. A Map Information Office has been established in the Geological Survey, which serves as a central clearing house to furnish, to the various Government agencies and the public, information relative to available map, survey, and air photographic data.

The progress of the more important surveys and mapping is reported below under the various department and agency headings. Compiled special purpose maps are published infrequently by several other agencies. The Office of Geographer of the Department of State publishes maps, in connection with treaties and other duties of that department; the National Resources Planning Board (formerly the National Resources Committee) publishes maps, generally in connection with reports, graphically presenting the data resulting from their studies (more fully described in THE AMERICAN YEAR BOOK, 1939, page 277). The Division of Maps of the Library of Congress publishes special maps, often of historical significance. The International Boundary Commissions have published maps along the international boundaries based on accurate surveys of those areas.

DEPARTMENT OF WAR

The Corps of Engineers published, during 1940, new quadrangle maps, scale one inch equals one mile, covering approximately 5,000 square miles of area in Washington, Oregon and California, and 2,000 square miles in Texas. Approximately equal areas were surveyed during the year for future publication. Air photographs were made of southern New Jersey to be compiled into new maps and of central New Jersey for revision maps. New mapping is proceeding in southwest California and southwest Texas; revision mapping is in progress in west central California, several areas in Maine, and one area in southwest Texas.

The Strategic Maps of the United States, scale 1:500,000, form an important series now issued for the first time. There are 87 individual maps covering the entire United States, all issued in final or proof stage. This series is based on the Sectional Aeronautical Chart Series, the special aeronautical information having been deleted and much strategic information added.

The Corps of Engineers also makes extensive harbor and river surveys in connection with harbor improvement and flood control. The Mississippi River Commission surveys and publishes maps and charts of the Mississippi River and adjacent territory. The Lake Survey surveys the Great Lakes and issues nautical charts of those waters, Lake Champlain, and the St. Lawrence River.

POST OFFICE DEPARTMENT

The Division of Topography, under the Fourth Assistant Postmaster General, publishes a series of post-route maps (generally on a scale 1:500,000) by states and supplementary larger scale series known as rural-delivery, county, and local-center maps. These maps are primarily for administrative use, and the postal information on them is frequently revised.

DEPARTMENT OF THE NAVY

The Hydrographic Office published 23 new nautical charts of foreign waters, of which five were from original U. S. Naval Surveys, and five new aviation charts. The Hydrographic Office now publishes a total of 2,680 nautical and 44 aviation charts of foreign areas.

During the year, surveying operations covered approximately 23,000 square miles off the coasts of Venezuela and off-lying islands, and 76,000 square miles among the islands of the Pacific. Adequate surveys now cover the north coast of Venezuela from the Colombia-Venezuela boundary east to longitude 63° 42′ west.

Astronomic observations were made in the Bahama Islands. An air photographic survey was completed of the Atlantic coasts of Panama and Costa Rica, and air photography of the coast of Ecuador has been started for use in conjunction with the hydrographic survey of that area.

DEPARTMENT OF THE INTERIOR

The Geological Survey published 60 new and eight revised topographic quadrangle maps and 34 special maps during the year, and in addition, 49 new quadrangle maps had been engraved and were at press at the end of the year.

A total of 23,423 square miles was newly surveyed and 619 square miles were revised for topographic maps; and planimetric maps, without contours, of 3,595 square miles were compiled from air photographs for preliminary publication. The areas surveyed were in 45 states, the District of Columbia, and Puerto Rico.

In Alaska 132 square miles were mapped topographically in detail but topographic mapping on a reconnaissance scale was completed of an area of approximately 3,500 square miles. A planimetric base map of approximately 5,000 square miles was compiled from air photographs.

Much of the mapping in the United States is compiled from air photographs, and during the year photographs covering 22,021 square miles were procured, exclusive of the Tennessee Valley area (see Tennessee Valley Authority below). Control surveys in connection with the mapping in the United States consisted of 7,577 linear miles of third-order leveling, 4,471 miles of transit and tape traverse, and the establishment of 277 third-order triangulation stations. Nine bulletins containing the results of control surveys were published and eight additional manuscripts had been completed.

The principal areas in which surveying for mapping is actively in progress are Maine, Massachusetts, Tennessee Valley, northern Wisconsin, California, and northwest Washington.

In conjunction with water resources studies, plan and profile studies of 165 miles of streams were made and detailed surveys at 11 dam sites.

The General Land Office conducts the surveys of the public lands through its Cadastral Engineer Service, and prepares and files plats covering areas newly surveyed and resurveyed. A series of state maps (scale 1:792,000) of the public land states is regularly issued, revised editions appearing infrequently.

The Office of Indian Affairs makes occasional surveys of Indian reservations. The National Park Service surveys and publishes maps of the national parks under its supervision. The Fish and Wildlife Service (formerly the Biological Survey of the Department of Agriculture and the Bureau of Fisheries of the Department of Commerce) surveys the migratory fowl sanctuaries, bird refuges, and other areas under its jurisdiction.

The Board on Geographical Names, while not engaged in direct mapping, does decide the correct geographic names and the spelling which shall be used on all maps published by Federal bureaus.

DEPARTMENT OF AGRICULTURE

In addition to its varied mapping activities, the Department has obtained, in recent years, air photographs covering approximately two-thirds of the United States. These are primarily for use in connection with the crop control work of the Agricultural Adjustment Administration, but a majority of them comply with the specifications for mapping photographs, and are on an approximate scale of 1:20,000.

The Forest Service has published approximately 48 maps of National Forest areas during the year. These are on scales of one, two, and four miles to the inch and are prepared for administration of the forests and fire-fighting and range management therein. Areas to the extent of 30,724 square miles were mapped from air photographs and 19,799 square miles from topographic and drainage surveys.

The Bureau of Plant Industry issued during the year 29 soil survey reports with maps, of areas previously surveyed; and in cooperation with 28 states made detailed soil surveys of approximately 15,500 square miles and mapped by reconnaissance 914 additional square miles. Each map usually covers a county on a scale of one mile to the inch, and, except for the soil data, is usually compiled from other source material although some are from original surveys. The maps are primarily a graphic classification of the types of soil to be found and their usefulness. The total number of such surveys which has been published to date is 1,478. At the close of the year 45 additional maps were being printed, 103 were in various stages of compilation, and 59 surveys were in progress in the field.

The Soil Conservation Service published during the year maps in eight areas, scale 4 inches to the mile, covering 3,100 square miles. These large-scale planimetric maps of agricultural areas show by printed symbols the characteristics and proposed treatment of the land. They are prepared primarily for use in studies of soil erosion conditions and recommended land use. The maps are compiled from air photographs, and publication began only recently. During the year 92,000 square miles were photographed and contracts were awarded for photographs of 46 additional areas totaling 70,300 square miles. Office compilation was in progress on maps of 7,000 square miles.

The Bureau of Agricultural Economics publishes compiled maps on which agricultural data are shown.

DEPARTMENT OF COMMERCE

The Coast and Geodetic Survey during 1940 published 10 new nautical charts of waters of the United States and possessions. Most of these were based on complete new surveys of the respective areas. One new series is composed of charts Nos. 825, 826, and 827 which cover the inland waterways of New Jersey from Manasquan Inlet to Cape May on a scale of 1:40,000. Two new charts, Nos. 1050 and 1051, scale 1:175,000, are regional charts for navigating the Intracoastal Waterway and connecting waterways from New Orleans to Lake Calcasieu in Louisiana. The total number of nautical charts under constant revision is 801, of which 163 of Philippine areas are published at Manila.

Hydrographic surveys were made covering 83,371 square miles in which a total of 1,676,028 individual soundings were taken. Topographic surveys were made of 1,467 square miles, in which 3,080 miles of shoreline were included. The areas in which the principal surveys were conducted are the Gulf of Maine, the eastern part of the Gulf of Mexico, Puget Sound, Glacier Bay, and the Aleutian Islands and Alaska Peninsula in Alaska.

Control surveys were made in the interior of the country, including 1,885 linear miles of first-order triangulation covering 27,130 square miles; 70 miles of second-order triangulation covering 255 square miles; and 732 miles of first-order and 1,006 miles of second-order leveling. Reconnaissance for future triangulation covered 1,720 miles of area and 30,710 square miles.

There are three principal series of aeronautical charts published of which 106 are now on issue. The most important series is the 87 sectional aeronautical charts, scale 1:500,000, which have all been published, entirely covering the United States. During the year four new regional aeronautical charts, scale 1:1,000,000, were published, making 10 now available out of the series of 17. Also two additional direction finding aeronautical charts, scale 1:2,000,000, were published, completing the series of six. One aeronautical chart, Kenai, scale 1:1,000,000, of Alaska has been published. Compilation is progressing rapidly on the remaining seven regional charts and the remainder of the series covering Alaska.

Thirty-five new planimetric maps were published bringing the total of these available to 659. These maps are on the large scales of 1:5,000, 1:10,000 and 1:20,000, and are reproduced in black line only, without contours. They are compiled from air photographs, and their large scale and accuracy permits the addition of other engineering data. The series covers the coastal areas only; they are available now for the major portions of the Atlantic and Gulf coasts and some areas on the Pacific coasts. For this type of map, additional air photographs were taken of the west coast of Florida, Lake Okeechobee, and the trans-Florida canal; of the eastern Chesapeake Bay area; and of portions of New York harbor, for revision use.

The Weather Bureau (formerly in the Department of Agriculture) compiles and publishes the daily weather maps and other maps which chart various meteorological data. The Bureau of Census compiles many maps for its own use in population and other census tabulation studies. A few of these are published. The Bureau of Foreign and Domestic Commerce compiles and publishes special, usually small scale, charts on which are depicted amount and flow of commerce and other statistics.

FEDERAL WORKS AGENCY

The Public Roads Administration (formerly the Bureau of Public Roads of the Department of Agriculture) has now organized in all states highway planning surveys which assure eventually a complete series of state and county maps showing the location of 2,965,000 miles of rural roads and the character of culture served by every mile of such road. These surveys are made and the maps produced in cooperation with the State Highway Departments and the state and county maps are available only from those departments.

The state maps, generally on the scale of 1:500,000, have been completed in 33 states and partly completed in five others.

The county maps, generally on the scale of one mile to the inch were fully described in THE AMERICAN YEAR BOOK, 1939 (page 276). The primary function of the series is to show all roads and their condition but they also show all individual dwellings and buildings along the roads and their occupancy. The maps are printed in black and white, yet the information is clear and legible. The county maps have been completed for all counties in each of 38 states and for a total of 2,621, or about 85 per cent of the 3,070 counties in the United States.

Supplementing the county maps are three series of maps, each created by the superposition of additional information on the originals. The first of these shows the rural delivery or star mail routes, the second shows the school bus routes, and the third, which is at half scale, shows the volume of traffic flow. These three series are 40 to 60 per cent completed.

The Transportation Maps, scale 1:250,000 and reproduced in color, are published by the Public Roads Administration. These have been completed for 145 sheets covering 21 states and revised editions of 21 sheets covering six states have also been issued. The 21 states for which the maps are available are the New England States, the Atlantic Coast States, except Virginia and North Carolina; the three West Coast States; and Arizona, Iowa, Michigan, Pennsylvania, and Wisconsin.

TENNESSEE VALLEY AUTHORITY

The Tennessee Valley Authority, in cooperation with the Geological Survey, is issuing approximately 50 new topographic quadrangle maps of its area per year. These maps are all on a scale of 1:24,000 and are compiled from air photographs by stereophotogrammetric methods. Approximately 3,500 square miles are surveyed annually, air photographs being taken, controlled by supplemental control, and 1,000 miles of second-order levels and compiled into contoured maps by the multiplex.

The Authority also makes extensive cadastral and property surveys for the purpose of land acquisition in connection with its power projects. Navigational charts of the new reservoirs, created by the dams recently built on the Tennessee River are being prepared and issued. Four charts of the Guntersville Reservoir are now available.

STATE GEOLOGICAL SURVEYS

By Paul H. Price

Secretary, Association of American State Geologists

GENERAL

Civilization is dependent to an important degree upon the use of mineral resources. During war and preparation for war, mineral industries are greatly expanded, and search for new sources of supplies is greatly increased. All geological surveys are receiving numerous requests for possible sources of mineral deposits. In this Chemical Age, a nation's greatness depends to a greater degree upon the quantities and qualities of its mineral resources. The United States is especially blessed with vast reserves of raw materials and the technical skill to make the best possible use of them.

As an aid to mineral development, 42 states had active geological surveys during 1940-1941. Available appropriations to the State Geological Surveys during the fiscal year were approximately $1,600,508. This amount was increased about $6,218,199 by the U.S. Geological Survey, Bureau of Mines, Coast and Geodetic Survey, Works Progress Administration, Department of Agriculture, C.C.C., and by state, county, and local organizations and individuals cooperating with state surveys, making a total of $7,818,707 devoted to the investigation of the nation's mineral resources.

Approximately 149 geologists and 492 other technical workers were employed full time, 171 geologists part time, and 316 non-technical workers full and part time on 545 state survey projects, including mineral resources, geologic, topographic, soil surveys, stream-gaging, and other projects. Some 413 technical reports and maps were being prepared for publication or published.

PROJECTS AND PUBLICATIONS IN BASIC GEOLOGY*

Alabama.—Manuscript on deposits of Selma and Ripley age in Alabama. Study of the Hillabee Schist in Alabama.

Arizona.—Stratigraphic studies by A. A. Stoyandu.

California.—*California Journal of Mines and Geology,* published quarterly.

Connecticut.—Geology of Western Connecticut. Geology of Eastern Connecticut. Pegmatites of Connecticut. Mineral Resources of Connecticut. Weather and Climate, *Bull.* 61.

Georgia.—Paleozoic Area. Geology of Coastal Plain. Geology of Crystalline area. Geology of paleozoic area.

Illinois.—In progress: Pennsylvanian stratigraphy; Pennsylvanian paleontology. Micropaleontology—Pre-Mississippian, Mississippian, and Pennsylvanian. Paleobotany of the Pennsylvanian System. Subsurface studies of the formations of the Paleozoic. Pleistocene System. Geologic structures of the Illinois Basin. Areal investigations and geologic mapping. Petrology of Illinois clays. Geology and mineral resources of the Marseilles, Ottawa, and Streator quadrangles. Paleobotany of Pottsville. Pennsylvanian fusulinidae. Glaciation of the Grays Lake quadrangle. Completed: Report on geology and mineral resources of the Marseilles, Ottawa and Streator quadrangles. Geology and oil possibilities of extreme southern Illinois. Preliminary geologic mapping of parts of the Alto Pass, Jonesboro and Thebes quadrangles. Report on Mazocarpon oedipternum, sp. nov., and identity and relationship of other Pennsylvanian Sigillarians. *Bulletin 65,* Geology of Chicago region. Report of Investigations 59, preliminary geologic maps of the Pre-Pennsylvanian formations in part of southwestern Illinois. Report of Investigations 60, preliminary geologic map of Mississippian formations in Dongola, Vienna, and Brownfield quadrangles. R. of I. 61, subsurface geology of Chester series in Illinois; subsurface geology of Iowa series in Illinois. R. of I. 62, Mississippian border of eastern interior basin. Circular 48, correlation of minable coals of Illinois, Indiana, and western Kentucky. C. 50, a new cycadophyte and its relatives. C. 51, Coal Balls as an index to the constitution of coal. C. 53, subsurface stratigraphy of Pennsylvanian formations associated with Coal No. 6 in region of Centralia, Illinois. C. 57, significant uncertainties in Pennsylvanian correlation of Illinois coal basins.

Indiana.—Geology of St. Meinrad and Tell City Quadrangles. Geology of Coal City, Linton, Switz City, and Jasonville Quadrangles. Geology of Bedford Quadrangle.

Iowa.—Pleistocene History of Mississippi River. Pleistocene Loesses. Illinoian and Post-Illinoian Pleistocene Geology of Iowa. Pennsylvanian Stratigraphy. Report of Director, 1934 to 1939. Pleistocene Gravels of Iowa. Pollen Studies of Interglacial Deposits in Iowa. Geology of Adams County.

Kansas.—Geology and Physiography of High Plains. Studies of paleontology and stratigraphy of Kansas. The Bronson Group. The Pleistocene of northeastern Kansas. Geologic Studies in southwestern Kansas.

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* To conserve space, projects and publications under each classification are listed without description. Details available from respective state geologist.

Kentucky.—Devonian Subsurface Strata in western Kentucky. Subsurface Geology of Larue County. Geology of the Big Clifty Quadrangle.

Louisiana.—Geology of: Rapides and Avoyelles Parishes. Jackson and Bienville Parishes. Vernon Parish. Red River and De Soto Parishes. Webster Parish. East and West Carroll Parishes. East Baton Rouge Parish. Allen and Beauregard Parishes. Natchitoches Parish. Washington and St. Tammany Parishes.

Michigan.—Magnetic and geological surveys of iron and copper districts. Stratigraphical studies from well samples and logs. Report on sedimentation studies in western Michigan.

Minnesota.—Cook County Geology. Duluth Metropolitan Area. Paleozoic stratigraphy. Geophysical work on Mesabi extension. Cuyuna manganese.

Missouri.—Stratigraphy southeast Missouri. Stratigraphy southwest Missouri.

Montana.—Physiography of Gravelly Range. Study of Paleozoic Limestones.

Nebraska.—Stratigraphy of Permian and Pennsylvania. Tertiary stratigraphy. Permian and Pennsylvanian Bryozoa. Fauna of Miocene and Pliocene Tertiary.

New Mexico.—Studies in stratigraphy of Pennsylvanian and Permian formations.

New York.—In progress: Geology of Saranac Lake Quadrangle and Schunnemunk Quadrangle. Glacial Geology of Syracuse Region. Completed: Guide to Geology of Lake George Region. Geology of: Wellsville Quadrangle. Oriskany Quadrangle. Catskill and Kaaterskill Quadrangles. Coxsackie Quadrangle. Willsboro Quadrangle. Paleontologic Papers.

North Carolina.—Raleigh Quadrangle.

North Dakota.—Geology of Horton County. Summary of North Dakota Stratigraphy.

Ohio.—In progress: Field study of Pennsylvanian rocks in Carroll and Tuscarawas counties. Collection of samples of dolomites and limestones in western Ohio.

Oklahoma.—Areal geology, stratigraphy and mineral resources of Tulsa County. Geology and mineral resources of Washington County. Director's Biennial Report. Control Survey Circular—central Oklahoma.

Oregon.—Geological survey of Multnomah County. Wallowa Mountains. Butte Falls Quadrangle. Grants Pass and Kerby quadrangles. G.M.I. Short Paper No. 3, "Advance Report on Some Quicksilver Prospects in Butte Falls Quadrangle."

Pennsylvania.—Martinsburg stratigraphy. Surface History of Pennsylvania. The rocks of Pennsylvania. The Silurian System in Pennsylvania. Curwensville Quadrangle. Tyrone Quadrangle. Fayette County. York County. Devonian of Pennsylvania.

Texas.—Geology and Minerals of the Llano region. Mississippian of Llano region. Collection of vertebrate fossils. The larger invertebrate fossils of Navarro Group in Texas.

Virginia.—In progress: Geology and mineral resources of Abingdon quadrangles; Burkes Garden quadrangle; Augusta County; Frederick and Clarke counties; Giles County; Smyth County; Tazewell County; marble belt southwest of Lynchburg; geology of Hot Springs district; geology of Shenandoah National Park; state parks in Virginia; guidebook of Lee Highway in Virginia; physical features of Virginia; rocks and minerals of Virginia. Completed: Geology and mineral resources of Amherst quadrangle; Stony Man quadrangle; Natural Bridge district; and Scott County. Geology of Appalachian Valley in Virginia.

Washington.—Origin of certain gneisses and schists of Kettle Range, Ferry County. Preparation of tectonic map of Washington. Preparation of thin sections of samples of all formations in Washington. Index to stratigraphy. Stratigraphy and structure of flooded terrane above Grand Coulee dam. Stratigraphic studies on the Olympic Coast.

OIL AND GAS

Alabama.—Issuance of weekly progress report on oil and gas wells.

Arkansas.—Lower Cretaceous and Jurassic formations of southern Arkansas and their oil and gas possibilities. Study of stratigraphy and paleontology of the Pitkin formation.

California.—Pre-print Part One of *Bulletin 118*—Geologic formations and Economic Development of Oil and Gas Fields of California, three additional Parts in press.

Georgia.—Sub-surface geology of Coastal Plain.

Illinois.—In progress: Oil and Gas stratigraphy and structure. Physical and chemical tests of oil sand cores. Data on repressuring plant methods. Studies of water flooding in Illinois oil fields. Scouting of drilling wells and cooperation with Illinois Scout Check. Work on development maps of active areas in Illinois oil fields. Geology and oil and gas resources of Illinois Basin. Completed: History of oil and gas development in Illinois in 1939. Monthly reports on drilling activity in Illinois. Revision of oil and gas map of Illinois. Reports on oil activity in Illinois before Interstate Oil Compact Commission. Report on porosity, total liquid saturation and permeability of Illinois oil sands.

Indiana.—Current maps of fields and counties as development occurs. Report on the Griffin Oil Field.

Iowa.—Possible oil and gas in Iowa part of Forest City Basin. Administer oil and gas drilling law.

Kansas.—Geology and Oil and Gas Resources of Neosho County: Forest City Basin. Studies of insoluble residues. Collection of data on oil and gas wells in Kansas. Subsurface studies in Kansas. Oil and gas developments during 1940. Geology and oil and gas resources of Crawford County.

Kentucky.—Studies in porosity, permeability and oil content of oil sands.

Louisiana.—Study of all oil and gas fields of State. Study of oil and gas possibilities of all state owned lands.

Michigan.—Structural maps on oil fields. Geology of the Walker Field, Kent County. Engineering studies of oil field development and practices.

Missouri.—Correlations northwest Missouri.

Nebraska.—Logging Wells.

New Mexico.—Revision of report on oil and gas.

North Dakota.—General cooperation with oil companies on petroleum exploration.

Ohio.—In progress: Collection of well cuttings and their examination; also of well logs. Scout work in the field for oil and gas data included western Holmes County, collections of samples at Toledo. Also mapping of structures continued.

Oregon.—Magnetometer survey north of Salem.

Pennsylvania.—Oil City quadrangle. Franklin quadrangle. Summit Gas Pool. Tidioute quadrangle. Hilliards quadrangle. Titusville quadrangle. Deep oil and gas sands.

South Dakota.—Magnetic Survey of central South Dakota. Structural survey near Chamberlain.

Virginia.—Natural gas possibilities in southwestern Virginia.

Washington.—Laboratory examination of drill cuttings. Preparation of permanent file of drill cuttings. Preparation of file covering progress of drilling tests.

West Virginia.—Wetzel County Report. Survey of methods for secondary recovery of oil in West Virginia. Study on the composition of natural gas. Petrography and correlation of deep well sections in West Virginia.

COAL, COKE AND PEAT

Alabama.—Manuscript on coal beds.

Connecticut.—Economics of peat, minor project.

Georgia.—Correlation of coal measures in Dade and Walker counties.

Illinois.—In progress: Study of constitution of coals, including project on exploration by oxidation. Study of constitution of commercial coal fines. General coal report. Investigation of physical properties of coal under three variables (temperature, pressure, and time). Composition and fusibility of ash from Illinois coals. Nature of moisture in coal. Review of literature on composition and constitution of coal. Demonstration of smokeless briquets from Illinois coals. Completed: Structure map of Herrin (No. 6) coal bed in groups of southern Illinois counties. Study of equilibration method for the determination of moisture in coal for classification by rank. Nomenclature of megascopic description of Illinois coals.

Iowa.—Quality of Iowa coal.

Louisiana.—Study of lignite resources.

Michigan.—Report on coal.

Ohio.—Some studies of coal beds of western Carroll and southeastern Mahoning counties.

Oklahoma.—Testing coal for coke.

Oregon.—Reconnaissance of Scio coal area.

Washington.—Catalogue of coal mine locations and progress of operation.

West Virginia.—Characteristic of minable coals.

METALLIC AND NONMETALLIC MINERALS

Alabama.—Manuscript on red iron ores of Russellville District. Manuscript on manganese. Manuscript on talc deposits.

Arizona.—Geology and ore deposits of Tombstone District. Tungsten, molybdenum, and vanadium deposits. Six information circulars.

Arkansas.—Study of manganese reserves in north Arkansas. Study of zinc reserves. Sponsoring W.P.A. project drilling for gypsum in Pike and Howard Counties. Studies of clays and shales found in Arkansas.

California.—Statistical Bulletin 117 *California Mineral Production,* published annually.

Connecticut.—Geology of western and eastern Connecticut. Pegmatites.

Georgia.—Manganese deposits. Gold deposits. Chromite deposits. Sericite and serpentine, benefication and utilization research. Glass sand materials. Agricultural limestone.

Illinois.—In progress: Physical properties of clays. Composition and base exchange characteristics of clays and shales. Clay resources of Chicago area. Beneficiation of fuller's earth. Utilization of fluorspar. Sand and gravel resources. Soundness of Chicago area dolomites. Chemical stratigraphy of southern Illinois limestones. Silicate melts: reactions of silica-alumina-lime-magnesia at elevated temperatures. Completed: Agricultural limestone resources of a group of southeastern Illinois counties. Effect of heat on clay minerals Illite and Montmorillonite. Progress on investigation of properties of clays and shales as mortax mix. Tests of face brick from Illinois and other states.

Kansas.—The Dakota clays of north-central Kansas. Building stone for University of Kansas. Chalk resources. Kansas building stone resources. Plant treatment of nonmetallic mineral products. Sand project.

Louisiana.—Sand and gravel resources.

Missouri.—Barytes deposits. Pyrite deposits.

Montana.—Geology and ore deposits of Jardine District. Platiniferous gold-copper deposits of Revais Creek District. Geology and ore deposits of Highland District. Study of clays.

Nebraska.—Diatomite and volcanic ash deposits.

New Mexico.—Geology and ore deposits of northeastern New Mexico. Clays and shales.

North Carolina.—Manganese deposits.

North Dakota.—Sodium sulphate deposits in North Dakota.

Ohio.—Dolomites and limestones of western Ohio. Marls, tufa rock, travertines and bog ores. Clarion clay of Vinton County.

Oklahoma.—Copper in red beds. Fuller's earth for bleaching oils.

Oregon.—Investigation of chromite beach sands of Oregon coast. Lime rock in Willamette Valley.

Pennsylvania. — Clay deposits. Quarry industries.

South Dakota.—Manganese survey in Missouri Valley.

Vermont.—Mineral resources.

Virginia.—Blue Ridge hematite; geology of Great Gossan Lead in Floyd, Carroll and Grayson counties; and manganese deposits. Diatomite deposits; limestones; slate deposits; talc and soapstone deposits. Commercial granites.

Washington.—Compilation of card files for mines, mining companies, and mineral occurrences. Geologic examination of all mining operations. Field service aid to prospectors. Chromite resources. Mineralization of Cascade and Stehekin districts. Tungsten deposits. Magnesite and dolomite resources.

West Virginia.—Clays.

GENERAL ECONOMIC

Alabama.—Geology and mineral resources of Cherokee County. Red iron ores of Russellville District. Manganese deposits. The Warrior Coal Field. Alabama Talc.

Arizona.—Information Circulars on Diatomaceous Earth; Ohimite; Mica; Gypsum, and Quartz. Tungsten Deposits.

Arkansas.—Sponsoring statewide mineral survey by W.P.A. personnel. Thirteen county reports on separate counties. Benton, Carroll, Washington, and Madison Counties. Polk County mineral report. Inf. Cir. 12 "Lower Cretaceous and Jurassic Formations of Southern Arkansas and their Oil and Gas Possibilities." Manganese minerals. Outlines of metallic minerals. Stibnite deposits of Pulaski and Sevier Counties. Tertiary Limestones of Pulaski and Saline Counties. State Mineral Survey.

California. — Economic mineral map. No. 1, Quicksilver.

Florida.—The sedimentary kaolins.

Georgia.—Chert, occurrence in Georgia. Kaolin, stratigraphy of. Search for oil.

Idaho.—Gold placers of Secesh Basin, Idaho County. Geology and metalliferous deposits of Kootenai County: of Boise Basin. Geology and quicksilver deposits near Weiser. Geology and tungsten deposits on Patterson Creek, Lemhi County.

Illinois.—Annual economic survey and statistical review of mineral industry in 1939. Mineral resources of Illinois Valley. Geographic Atlas of Illinois. Annual statistical summaries of mineral industry in 1938. Report on agricultural limestone distribution in 1939. Geographic atlas of Illinois. Illinois mineral industry in 1939 with special discussion of distribution of coal in 1937.

Iowa.—Agricultural lime resources of Lee County. Rock wool raw materials. Mineral production 1933-38. Summary of mineral production 1895-1938.

Kansas.—Western Kansas oil and gas development during 1940. Asphalt rock in eastern Kansas.

Kentucky.—Studies in porosity, permeability, and oil content of oil sands.

Louisiana.—Lignite resources. Sand and gravel resources.

Michigan.—Collection of mineral statistics 1939. Report on coal. Mineral resources 1938-39. Mineral industry. Oil and gas development for 1940.

Minnesota.—Industrial plants for rock wool and Fuller's earth.

Mississippi.—Bul. 40, *Upper Cretaceous Deposits.* Bul. 41, *Lauderdale County Mineral Resources.* Bul. 42, 43, and 44 in progress.

Montana.—Directory of Montana mining properties. Beneficiation of Montana chromite ores. Flotation of Montana copper-zinc-lead ores. Statewide Mineral Resources Survey. Geology and ore deposits of Jardine District. Platiniferous gold-copper deposits of Revais Creek District. Geology and ore deposits of Highland District. Study of clays. Beneficiation of Montana chromite ores.

New Mexico.—Geology and ore deposits of northeastern New Mexico, Bul. 15. Outlook for further ore discoveries in the Little Hatchet Mountains, Circular 7. Gold and Gold Mining in New Mexico, Circular 5.

North Dakota.—Pottery clay survey near Elgin. Sodium sulphate deposits of North Dakota.

Ohio.—Bul. 40, Clarion Clay of

Hope and Lincoln Furnace fields of Vinton County. Bul. 41, Marls, Tufa Rock, Travertines, and Bog Ores of Ohio. Bul. 42, Coal fields in Carroll and Mathoning Counties.

Oklahoma.—Copper in the red beds. Iron Ores, Supplement.

Oregon.—Statistical compilation in connection with reprint of Bul. No. 8 on feasibility of a steel plant in the Lower Columbia River Area.

Pennsylvania.—Smicksburg Quadrangle. Southeastern Clearfield County. Lehigh County. Brookville Quadrangle. Oil mining possibilities. Iron ores. Non-metallic minerals. Geology and mineral resources of Brookville and Smicksburg quadrangles. Clay resources of Pennsylvania. Geology and mineral resources of SE Clearfield. Studies in oil and gas sands.

South Carolina.—Geological investigation of dam and reservoir sites.

South Dakota.—Compilation of defense materials.

Texas.—Geology of Houston County. Petroleum resources.

Vermont.—Report on mineral resources. Cooperating with new products Commission of New England Council in searching for "new" economic minerals.

Virginia.—Mineral industries. Commercial granites.

Washington.—Mineral identification service. Reports on chromite, tungsten, and central Cascade district.

West Virginia.—Characteristics of minable coals. Clays. Survey of secondary recovery methods of oil. Greenbrier County. Study of causes of slips and slides in West Virginia roads.

Wisconsin.—Road Material Surveys.

TOPOGRAPHIC AND AERIAL MAPPING

Arkansas. — Sponsoring W.P.A. project for triangulation and leveling in central Arkansas.

Florida.—Maps accompany report of Homes and Washington Counties.

Georgia.—Geologic map. Subsurface structural map of Coastal Plain.

Illinois.—In progress: Carmi, Forreston, Galva, Mt. Carroll, Rose Hill, and St. Elmo. quads. Crete, Merom, and Peotone quads. Bulletin of level data. Completed: Cissna Park, Fithian, Freeport, Ina, and Mulberry Grove quads. Levelling: Assimption, Carmi, Cisne, Cornland, Edgewood, Enfield, Fairfield, Golden Gate, McLeansboro, Moonshine, Morrisonville, Newton, Niantic, Olney, Pana, Sailor Springs, Wayne City, and Xenia quads. Traverse: Arrowsmith, Cisne, Edgewood, McLeansboro, Newton, Olney, Sailor Springs, and Strawn quads. Areal geologic map. Geologic Map. Oil and gas map, 1940 edition. Oil and gas development maps. Developments maps of Albion, Carmi, Centralia, Clay City, Fairfield, Kinmundy, McLeansboro, Mt. Carmel, Nashville, Olney, Patoka, Ramsey, Roaches, Shawneetown, and Xenia.

Indiana.—Jasonville, Switz City, Pimento, Linton, Sullivan, Angola, Clear Lake, Owen, and Madison Quadrangles. Aerial photographs matched into maps.

Kansas.—Compilation of elevation data. Vertical control of ¼ 15′ quadrangles. 6—7½′ sheets in Wichita quadrangle. Oil and gas exploration map, Labette County.

Louisiana.—Maps included with reports under Basic Geology.

Michigan.—Surface geology map. Topographic map of bed rock—basal Pleistocene. Structural map. Isopachous map of glacial drift. Blue line base maps for oil field work: Dorr, Heath, Overisel, Townships. Kalamazoo, Montcalm, Muskegon, Roscommon, Van Buren Counties. Wildcat map of Southern Peninsula. Arenac County, Adams Township general map.

Missouri.—Mapped 2,500 square miles. State geologic map. Magnetic map of southeast Missouri.

Montana.—Geologic map.

Nebraska.—Areal mapping completed.

New York.—Maps included under Basic Geology report.

North Carolina.—Raleigh quadrangle.

North Dakota.—Geologic map.

Ohio.—State geologic map in progress.

Oregon.—Wallowa Mountains. Butte Falls quadrangle. Southwest Oregon for Mining Catalogues.

Pennsylvania. — Ridgeway and Brockwayville quadrangles. Note maps listed under Basic Geology and Oil and Gas.

Vermont.—Several quadrangles being mapped.

Virginia.—In progress: Berryville, Burkes, Garden, Capon Bridge, Clarksville, Front Royal, Gerrardstown, Hopewell, Middletown, Pounding Mill, Radford, Richlands, Rustburg, Vesuvius, Weyers Cave, Winchester quadrangles. Completed: Glen Allen, Pulaski quadrangles.

Washington.—Mapping under way on two 15-minute quadrangles.

West Virginia.—State is completely mapped by quadrangles, and county geologic and topographic maps, also by State Geologic map, State Relief map, Coal, Oil and Gas map, also County outline maps.

Wisconsin.—Aerial mapping in cooperation with U.S.G.S. Osseo quadrangle. Aerial maps: Beechwood, Bessemer, Lac du Flambeau, Minocqua, Star Lake, Trout Lake, Winchester, and Phelps quadrangles completed.

GROUND WATER RESOURCES AND STREAM GAGING

Alabama.—Underground water project. Surface water investigations.

Arkansas.—Study of ground and surface waters. Cooperating with U.S.G.S. in stream gaging.

California. — Cooperating with U.S.G.S.

Georgia.—Investigation of ground water and its availability in the Coastal Plain. Surface water resources investigation. Study of salinity movements in Savannah River.

Illinois.—Electrical resistivity survey of buried sand and gravel deposits in search for ground water supplies. Cooperation with State Water Survey Division. Cooperation with State Well Drillers' Association.

Indiana.—Current reports of progress by U.S. Ground Water Survey. Stream gaging done by Division of Engineering.

Iowa.—Forecasting and service on drilling wells. Subsurface geology. Production and water level studies. Quality of ground waters. General program of stream and lake gaging.

Kansas.—Ground water projects in progress on Shallow Water Basin, Meade Artesian Basin, Hamilton, Kearney, Finney and Gray Counties. Ground-water resources.

Louisiana.—Preliminary report on Ground-Water Resources at Alexandria. Ground water resources of Grant and La Salle Parishes; Jefferson Davis and Acadia Parishes; East of and West Baton Rouge Parishes; State-wide Observation Program Including Assistance to U.S. Army Camps in Rapides Parish.

Michigan.—Cooperative, CCC. Preparation of graphs.

Minnesota.—Investigation of south half of state; also northeast quarter. Stream gaging carried on by State Conservation Department.

Mississippi.—Field and laboratory work in alluvial plain.

Missouri.—State-wide investigation. Water resources.

Montana.—General study.

Nebraska.—Survey of ground water level movement. Survey of Richardson County. Survey in vicinities of Fremont, Kearney, Chadron, and Minden.

North Dakota.—Observation well program. Ground water irrigation in Oakes area. Ground water resources of Fargo area. Reconnaisance surveys for ground water irrigation possibilities. Ground water of Morton County. Ground water studies for various municipalities.

Oklahoma.—Geology and water resources of Cimarrion County. Miscellaneous services to towns and institutions. Beaver County. Cimarrion County.

Oregon.—Study of ground water resources near Gearhart.

Pennsylvania.—Well gaging. Summary of groundwaters. Ground water in north-central Pennsylvania.

South Dakota.—Ground water level studies on lakes and wells.

Virginia.—Ground water resources of Coastal Plain south of James River. Ground water resources of Coastal Plain north of James River.

Washington.—Collection and study of well logs and analyses. Detailed study of Ritzville area.

West Virginia.—Cooperation with U.S. Geological Water Resources Survey.

SOIL SURVEYS

Minnesota.—Carried on by Division of Soils of University College of Agriculture.

Nebraska.—Completed Cherry and Otoe Counties. Resurveying Saunders County.

West Virginia. — Greenbrier County.

MISCELLANEOUS

Alabama.—Archaeological investigations. Manuscript of guide leaflet to burial Museum at Moundville. Progress report for fiscal years 1934-38.

Arizona.—Field Tests for the common metals.

Arkansas.—Annual Administrative Report 1939-1940.

Connecticut.—Promotion of study of natural history. Study of fishes, behavior, ecology, etc. Study of spiders.

Florida.—The lakes and springs. Structure and stratigraphy.

Georgia.—Flagstone industry. Slate industry. State wide mineral survey and inventory.

Idaho.—Metallurgical Study of Idaho Placer Sands. Abridged bibliography of the mineral industry of the state. Mining activities in the North Fork of the Clearwater River area. Clay and beryllium studies of Latah County.

Illinois.—Current study of well cuttings. Cooperation with State Planning Commission. Cooperation with Illinois Commerce Commission. Cooperation with State Division of Highways. Revised edition of *Publications on Geology, Mineral Resources and Mineral Industries of Illinois, January 1, 1940.*

Kentucky.—A distribution of the woody plants in the various geological regions.

Michigan.—Lake level control studies. History of Geological Survey of Michigan. History of oil field development and practices.

Missouri.—Magnetic Survey. Reconnaissance Gravimetric Survey. Four Level Bulletins. Eight Traverse Bulletins.

Montana.—Mineral dressing and metallurgical studies for beneficiation of ores.

Nebraska.—Forest Land Survey.

New Mexico.—Mining, Mineral and Petroleum Laws of New Mexico, Bul. 16.

North Carolina.—The Mining Industry in North Carolina in the Years 1936-40. Information Circular #1, "Minerals for National Defense—North Carolina's Possible Contribution."

Oklahoma.—Traverse and leveling in northwestern Oklahoma. Control Survey Circular, Central Oklahoma. Director's Biennial Report.

Oregon.—Field work on Bulletin 14-C., Vol. 1 and 2, Catalog of Mining Properties in Southwest Oregon. *The Ore-Bin* (monthly publication). G.M.I. Short Paper #2, "Industrial Aluminum." Bul. 16, *Field Identification of Minerals for Oregon Prospectors.* Bul. 17, *Primer of Geology and Guide to Prospecting.* Bul. 20, *Analyses and Other Properties of Oregon Coals.*

Pennsylvania.—Geologic guide to Philadelphia region. Pennsylvania geology summarized.

West Virginia.—Collection of Statistics on Mineral Production.

RECLAMATION AND IRRIGATION

By John C. Page

Commissioner, Bureau of Reclamation, U.S. Coast and Geodetic Survey

THE BUREAU OF RECLAMATION

The Bureau of Reclamation, Department of the Interior, was created by an Act of Congress, June 17, 1902, for the purpose of survey, examination, construction, and operation of works for the reclamation by irrigation of arid and semi-arid lands in the western states. It is engaged in the construction, operation, or supervision of the operation of 68 irrigation projects or divisions of projects in 16 arid and semi-arid states in the West, which will furnish ultimately a full or supplemental water supply to approximately 10,000,000 acres of thirsty land.

The funds for this work have come from repayments by the water users, from oil leasing and other mineral operations, from the sale of public lands, and by allotments and direct appropriations by Congress. The money expended is returned to the United States Treasury for deposit in the Reclamation revolving fund by payments of settlers and from sales of power and water.

SCOPE OF IRRIGATION WORK

Since the Bureau of Reclamation was established, it has placed works in operation to serve nearly 4,000,000 acres of land which support approximately 1,000,000 people. Of this total acreage approximately 2,500,000 acres were once unproductive desert and 1,500,000 acres were in non-Federal irrigation districts which had inadequate water supplies. Under the present construction program, the largest in the Bureau's history, water will be provided for about 2,500,000 additional acres, transforming them from sagebrush wastes into productive farms that will support another 1,000,000 people. This will bring to 5,000,000 acres the total of new lands the Bureau has watered. Supplemental water will be supplied for about 3,500,000 acres already irrigated, bringing to almost 5,000,000 acres the lands which will have been rescued by the Federal Government supplying supplemental water. The Bureau estimates that as many as 20,000,000 acres additional can be irrigated with water resources as yet undeveloped and under policies now in effect. The future growth and stabilization of conditions in the West will be correlated in large measure with the conservation of these remaining water resources and their beneficial use.

DAMS COMPLETED

During the 1940 fiscal year the Bureau of Reclamation continued its major construction program. Work was in progress on 27 projects in 13 states. Thirteen major storage dams and one diversion dam were under construction during the year. Of these, four storage and one diversion dam were completed, leaving nine dams still under construction at the end of the year. Those completed were: Seminoe Dam, Kendrick Project, a 290-foot concrete arch dam on the North Platte River in Wyoming; Boca Dam, Truckee River Project, a 110-foot earthfill structure on the Little Truckee River in California; Grassy Lake Dam, Upper Snake River Storage Project, a 120-foot earthfill dam on Grassy Creek in Wyoming; Fresno Dam, Milk River Project, a 77-foot earthfill dam on the Milk River in Montana; and the Roza Diversion Dam, Yakima Project, a concrete gravity weir on the Yakima River in Washington.

The dams completed during the year bring to 161 the total number of dams completed by the Bureau since its origin in 1902. Of these Shoshone, Arrowrock, Owyhee, and Boulder were each, at the time of completion, the highest in the world.

DAMS UNDER CONSTRUCTION

The nine dams under construction at the end of the year were: Grand Coulee Dam, Columbia River Project, Washington, a 553-foot concrete, straight-gravity dam on the Columbia River, 83.3 per cent completed; Shasta Dam, Central Valley Project, California, a 560-foot concrete, straight-gravity dam on the Sacramento River, 40 per cent completed; Friant Dam, also on the Central Valley Project, a 320-foot concrete, straight-gravity dam on the San Joaquin River, 29 per cent completed; Marshall Ford Dam, Colorado River Project in Texas, a 270-foot concrete, straight-gravity dam on the Colorado River, original contract for the 190-foot low dam 97 per cent completed; Green Mountain Dam, Colorado-Big Thompson Project, Colorado, a 270-foot earth and rockfill dam on the Blue River, 36 per cent completed; Vallecito Dam, Pine River Project, Colorado, a 150-foot earthfill dam on the Pine River, 79 per cent completed; Deer Creek Dam, Provo River Project, Utah, a 240-foot earthfill dam on the Provo River, 50 per cent completed; Wickiup Dam, Deschutes Project, Oregon, a 100-foot earthfill dam on the Deschutes River, which is being constructed partly under a contract and partly by CCC forces; and Crane Prairie Dam, also on the Deschutes Project, a 40-foot earthfill structure, 82 per cent completed. Of these, Friant and Crane Prairie were begun during the year.

Four of the storage dams under construction are of tremendous size. They are Grand Coulee, Shasta, Friant and Marshall Ford. Grand Coulee will be the largest concrete dam in the world, while Shasta and Friant Dams will be second and fourth largest; and Marshall Ford will be fifth. Boulder Dam, although ranking first in height, is third largest.

CANALS, TUNNELS AND OTHER CONSTRUCTION

During the fiscal year 1940 the Bureau constructed 354 miles of canals, 474.5 miles of drains, 23 tunnels with a total length of 31,430 feet, 464.4 miles of roads, 38.9 miles of railroad, 548.1 miles of transmission lines, 139.7 miles of telephone lines, 46.5 miles of pipe lines, 3,970 canal structures, 173 bridges, 824 culverts, and 40 flumes. There were placed in dams 3,471,897 cubic yards of concrete, 2,951,752 cubic yards of earth and 465,165 cubic yards of rock; and 33,348,647 cubic yards of earth and rock were excavated. A total of 4,266,131 barrels of cement were used.

COLUMBIA BASIN PROJECT

An outstanding project under construction is the Columbia Basin Project designed to provide water for the irrigation of 1,200,000 acres of dry land in central Washington and for the generation of large blocks of hydroelectric power for irrigation pumping requirements and for industrial and urban consumption. Rising to a height of 553 feet and stretching across the Columbia River 4,300 feet, Grand Coulee Dam was nearing completion at the end of the fiscal year, with earnings under the second contract having reached 83.3 per cent of the estimated contract values of $35,476,440. Installation of turbines for the two initial 14,000-horsepower station service generating units was under way at the end of the year, and parts of one of the generators had been received.

Excellent progress was made on the economic investigations and soil surveys of the 1,200,000 acres of irrigable land. Looking forward to the time in 1943 or 1944, when water may be available for the irrigation of the first block of lands included in the 1,200,000 acres ultimately to be irrigated, the Bureau of Reclamation in July 1939, launched joint investigations of the Columbia Basin Irrigation Project. The object of the investigations is to plan for the successful settlement and development of the project area, which it is expected will support an increase of 350,000 in the population of Washington. A plan for the joint investigations has been set up for study which includes 28 separate problems in addition to the basic engineering surveys. Participating in the studies in some capacity and in varying degrees are more than 40 agencies of the Federal, state, and local governments, educational institutions, private industry, and local civic organizations. Subjects of study range from the number and proper location of new towns or cities within the area to suitable guides for ornamental and useful tree plantings on the individual farmsteads.

CENTRAL VALLEY PROJECT IN CALIFORNIA

Another major undertaking of the Bureau of Reclamation in progress is the Central Valley Project in California designed to alleviate critical water shortage and problems in three important agricultural areas through the conservation of waste flood waters of the Sacramento and San Joaquin Rivers. By means of Shasta Dam in the north and Friant Dam in the south, regulation of both the Sacramento and the San Joaquin Rivers will provide adequate water to supplement the irrigation supply of a large area of highly productive orchard and farm lands in the southern San Joaquin Valley; reestablish navigation farther upstream on the Sacramento River; prevent salt water intrusion in irrigation channels of the delta of the Sacramento-San Joaquin Rivers; provide supplemental water for irrigation, domestic, and industrial uses in the Walnut Creek-Martinez area, south of Suisun Bay; and make possible the generation of 375,000 kilowatts of water power at Shasta Dam.

BOULDER DAM

Boulder Dam, on the Colorado River in Nevada and Arizona, with eight large generating units and one smaller one in operation had almost doubled its output during the fiscal year, generating 2,834,248,000 kilowatt-hours of electrical energy. The Bureau of Reclamation paid into the U.S. Treasury $3,700,000. The gross income during the year, including power receipt and payments on power machinery by lessees, totaled $5,360,000. Operating were six of the large 82,500 kilovolt-ampere generating units in the Nevada wing and two of the large and one of the smaller 40,000 kilovolt-ampere generating units in the Arizona wing, totaling 700,000 kilowatts. Ultimately there will be 15 of the large and two of the smaller generating units in operation with a capacity of 1,317,500 kilowatts. Equipment for two more large units was being installed in the Arizona wing and equipment was on order for one more large unit for the same wing, leaving yet to be ordered equipment for only five units.

ALL-AMERICAN CANAL

The 80-mile All-American Canal, by far the largest irrigation ditch in the United States, is now practically completed. This canal, with its 130-mile Coachella Branch, will carry Colorado River water to irrigate lands in Imperial and Coachella valleys in southern California. Work on the second 40-mile section of the Coachella Canal was about one-third completed at the end of the year.

FINANCING

Under the Reclamation Law, project water users are required to contract to repay without interest over a period of years the cost of the construction of the project works which serve them and in instances where the project is operated by the Bureau, the water users pay annual operation and maintenance and water rental charges. Construction payments during the year totaled $2,293.980.25; operation and maintenance collections amounted to $1,101,522.51; and water rental receipts were $503,549.67.

FARMS AND TOWNS ON FEDERAL PROJECTS

The population of the 53,205 irrigated farms and the 258 towns and cities served by Federal projects reached a total of 837,617. Within the areas thus developed as the result of the construction of the Federal irrigation systems there have been established 937 schools and 1,148 churches. There were 108 banks serving the settlers of the project farms and towns.

As irrigation works are completed and water becomes available to irrigate lands on Federal Reclamation projects, announcement of the opening of any public land is made by the Secretary of the Interior. To insure successful settlement, regulations of the Department require, among other things, that an applicant for a public farm unit must have a cash capital of at least $2,000, or an equivalent in farm implements, livestock or other useful assets. The Farm Security Administration, since authorization by the Act of Aug. 7, 1939, has cooperated in connection with the opening of lands for settlement on Reclamation projects by furnishing financial assistance to worthy applicants who were otherwise qualified under regulations to enter a reclamation farm unit.

PUBLIC LANDS

By Fred W. Johnson

Commissioner of the General Land Office, Department of the Interior

NATIONAL DEFENSE AND LAND WITHDRAWALS

Advancement of national defense and continued conservation of the resources of the public domain were the primary objectives of the General Land Office during the year. Withdrawals of the public lands and requests for withdrawals in connection with the national defense program embraced more than 7,000,000 acres. A total of 41,369 acres have been withdrawn for air navigation purposes. In addition, all outstanding aviation leases and beacon light permits contain provisions under which the Secretary of War may assume full control over the lands whenever the President deems it necessary for military purposes.

THE POTASH SUPPLY

Protection of the nation's food supply through the development of an adequate supply of potash, a vital agricultural fertilizer ingredient, also was among the important defense moves brought about during the year. As a result of the war, shipments of this material from Europe and elsewhere have practically ceased. To meet the emergency, more than 6,000 acres of land, comprising the greater part of the dry bed of Searles Lake in California, have been leased by the General Land Office, and it is estimated that the supply available from this source, together with other potash produced in this country largely from land leased from the Government in California and New Mexico, should be sufficient to meet all domestic needs.

SURVEYS AND MAPS

Speeded up to meet defense demands, cadastral engineering activities during the year resulted in surveys embracing 5,693,105 acres. In many sections of the United States, the township plats depicting public land surveys prepared by the General Land Office supply the only map data available for military purposes. Other activities were carried on in 23 states and the Territory of Alaska. The wall map of the United States has been revised to show changes since the publication of the 1938 edition. A new map of Idaho, showing changes since the 1932 edition, has been completed.

The Branch of Planning, Use, and Protection made substantial progress on an inventory of the resources of the public domain, the mapping of public domain lands, range improvement services, and the assembly and analysis of information concerning the economic resources of Alaska.

Management of the timber resources on approximately 2,500,000 acres of revested Oregon and California railroad grant lands was furthered through additional research, inventory, and classification, and through establishment of improved procedures for maintaining sustained-yield cutting.

ORIGINAL ENTRIES AND SELECTIONS

(Fiscal Year Ended June 30, 1940*)

	Public Land		Indian Land	
	Number	Acres	Number	Acres
Homesteads:				
Stockraising	5	3,639	...	.....
Enlarged	6	1,753	1	322
Reclamation	162	21,148	23	2,692
Forest	13	1,200	...	.....
Section 2289, et al.	163	18,389	10	999
Total original homesteads	349	46,129	34	4,013
Deserts	8	940	...	.....
State selections	9	1,716	...	.....
Railroad selections	3	794	...	.....
Mineral applications and adverse claims	126	.....	1	.....
Miscellaneous	35	210	...	.....
Total original entries and selections	530	49,789	35	4,013
Indian land, as above	35	4,013	...	.....
Total	565	53,802	...	.....

* An original entry or selection of public land is one made in pursuance of an act of Congress which prescribed the terms and conditions under which patent may be issued or other evidence of title granted.

FINAL ENTRIES, OR ENTRIES BASED ON FINAL CERTIFICATES

(Fiscal Year Ended June 30, 1940*)

	Public Land		Indian Land	
	Number	Acres	Number	Acres
Homesteads:				
Stockraising	1,172	567,926	102	32,747
Enlarged	112	27,199	180	27,741
Reclamation	101	9,678	60	6,359
Forest	17	1,570	1	60
Commuted	13	1,531	17	1,231
Section 2289, et al.	500	46,111	59	5,366
Total final homesteads	1,915	654,015	419	73,504
Deserts	77	12,183	1	160
Public auction	9	1,331	...	.....
Mineral	107	7,115	...	.....
Miscellaneous	165	4,169	45	3,040
Total final entries all classes	2,273	678,813	465	76,704
Indian land, as above	465	76,704	...	.....
Total	2,738	755,517	...	.....

* A final entry of public land is one upon which final certificate has issued showing that the law has been complied with and that in the absence of irregularity, the entryman or claimant is entitled to a patent. If the requirements of law have been met, the equitable title to the land passes to the claimant upon the issuance of the final certificate.

FIRE PROTECTION OF PUBLIC DOMAIN

The General Land Office administers approximately 325,000,000 acres of public domain in the Territory of Alaska, of which approximately 250,000,000 acres are in need of fire protection. During 1940, the skeleton Alaskan Fire Control Service, established earlier in the year, conducted a vigorous educational campaign for fire prevention, in which Federal agencies, civic organizations and the general public rendered active cooperation. A short course on forest conservation and protection was conducted in cooperation with the University of Alaska. Defense activities in progress and those in prospect will greatly increase the fire hazard, and serious losses will result unless the protection organization is materially strengthened.

An incalculable amount of the nation's coal resources has been saved from destruction through the control of underground coal fires which have been consuming many of the large coal beds in public lands in the vicinity of Little Thunder Basin, Gillette, Wyo.

PATENTS ISSUED AND CERTIFICATIONS HAVING THE EFFECT OF PATENTS

(Fiscal Year Ended June 30, 1940*)

	Number	Acres
Homesteads:		
Stockraising	2,270	1,124,558
Enlarged	318	70,128
Reclamation	163	14,145
Forest	55	5,101
Section 2289 et al.	778	77,673
Total homestead patents	3,584	1,291,605
Deserts	85	13,320
Public auction	48	5,871
Timber and stone	4	413
Mineral	133	6,952
Railroad	6	10,138
Special acts	164	1,177,400**
Miscellaneous	1,185	56,706
Total patents all classes	5,209	2,562,405
Certified to States	....	135,077
Total patents and certifications	5,209	2,697,482

* Where upon final examination it is found that an entry or selection is in proper form and that the law has been complied with, a patent conveying the legal title to the claimant is issued. In the case of indemnity state selections, the legal title is conveyed upon approval thereof by the Secretary of the Interior and certification by the Commissioner of the General Land Office.

** Includes 793,847 acres of school section land, patented under the act of June 21, 1934 (48 Stat. 1185).

FINANCES OF THE GENERAL LAND OFFICE

Established in 1812 as the official "real estate agent" of the Government, the General Land Office last year was listed among the few Federal agencies which returned to the Treasury more money than was expended in its operation. Total cash receipts amounted to $7,057,942.16, which was more than three times the amount of expenditures for operations, and marked the fourth consecutive year in which receipts were in excess of $7,000,000.

LANDS PATENTED WITH MINERAL RESERVATIONS

The following table shows the areas patented during the year and the total areas patented to the close of the year, in which minerals in some form have been reserved to the United States.

	Fiscal Year	Total
	Acres	Acres
Stockraising act, all minerals reserved	1,124,559	32,834,116
Other acts:		
All minerals reserved	190,889	946,053
Coal only reserved	11,106	10,830,587
Some named minerals reserved	20,244	1,823,312
Total	1,346,798	46,434,068

REGULATIONS AND LEASES

Conservation of the grazing resources on the vacant and unreserved public lands was furthered by regulated grazing under section 15 of the Taylor Grazing Act. At the close of

SUMMARY OF MINERAL LAND WITHDRAWALS AND CLASSIFICATIONS OUTSTANDING JUNE 30, 1940

Class	Withdrawn	Classified	Total
	Acres	Acres	Acres
Coal	25,684,995	*33,494,162	59,179,157
Oil	**4,859,154	71,884	4,931,038
Oil Shale	5,989,949	4,081,208	10,071,157
Phosphate	1,889,601	302,219	2,191,820
Potash	9,411,906	....	9,411,906
Metallic Minerals	8,507	....	8,507
Total	47,844,112	37,949,473	85,793,585

* Includes 5,229 acres of coal land reserved for use of the United States (coal reserves Nos. 1 and 2).

** Includes 13,578 acres withdrawn as helium reserve.

Summary

Class	No.	Acres
Leases	4,764	4,823,559
Permits	245	268,190
Licenses	94	3,631
Total	5,103	5,095,380

LEASES OTHER THAN MINERAL, OUTSTANDING JUNE 30, 1940

Class	Number	Acres
Term grazing leases under Taylor Grazing Act	5,559	7,411,987
Grazing Leases, Alaska	11	807,833
Fur Farm Leases, Alaska	28	143,780
Aviation Leases and permits		
Leases	22	11,057
Beacon Permits	5	955
Mineral or Medicinal Spring leases	1	40
Recreational leases		
Act of June 14, 1926	16	19,639
Act of June 30, 1932	1	20
Boy Scout lease		
Act of January 21, 1927	1	80
Water Well		
Sec. 40, Mineral Leasing Act	2	80
Total	5,646	8,395,471

the year, grazing leases were outstanding on 7,411,986.77 acres, as against 5,830,743 acres outstanding at the close of the preceding year. Revenues from grazing leases during the fiscal year aggregated $152,378.34, compared with $137,365.13 during the preceding year.

The change from the system of issuing permits to prospect for oil and gas on the public domain to the system of issuing leases has been practically completed. The change was designed to aid in the conservation of the oil and gas resources, prevent speculation and secure more adequate returns to the United States from such resources.

Regulations were issued governing the utilization, primarily through lease, of small areas of the public domain outside certain national reservations for homesite, cabin, camp, health, recreational or business site purposes under the provisions of the 5-acre tract act of June 1, 1938. The conservation of national resources and the welfare of the applicants and of the communities in which the lands applied for are situated will be given primary consideration in connection with all applications received.

The regulations relating to the public lands which were codified and printed as a part of Volume II, Title 43, of the Code of Federal Regulations have been reprinted as a separate volume, with an index and tables, and with a supplement which in effect brings the volume up to April 17, 1940. A series of information bulletins is available upon request.

VIII. PUBLIC RESOURCES AND UTILITIES

MINERAL LEASES, PERMITS AND LICENSES OUTSTANDING JUNE 30, 1940

Leases, Permits and Licenses, by Classes

Class	Leases		Permits		Licenses	
	No.	Acres	No.	Acres	No.	Acres
Oil and Gas	1,265	566,612	....	......	....	......
O & G Act 8/21/35	3,103	4,137,322	....	......	....	......
Coal	365	68,050	136	105,106	94	3,631
Potash	21	47,092	....	......	....	......
Phosphate	7	3,292	....	......	....	......
Sodium	3	1,191	80	144,567	....	......
Sulphur	....	......	29	18,517	....	......
Total	4,764	4,823,559	245	268,190	94	3,631

PUBLIC UTILITIES

By John Bauer

Director, American Public Utilities Bureau

GENERAL DEVELOPMENTS

Public utility developments in the United States during 1940 centered principally in Federal hydro electric power. They included particularly the Tennessee Valley Authority, Bonneville Administration, the St. Lawrence River project, and the Supreme Court decision regarding Federal jurisdiction over river improvements.

Besides the Federal hydro electric matters, significant advances were made by the Securities and Exchange Commission in carrying out the purposes of the Public Utility Holding Company Act of 1935. Other Federal agencies were active in national aspects of public utility regulation. In transportation there was the notable event of rapid transit unification in the city of New York.

TENNESSEE VALLEY AUTHORITY

TVA has been concerned principally with consolidating and moving forward its activities. It has passed the years of harassment. It has not been hampered by obstructive litigation, nor has it undertaken important new activities. Free to proceed, it has actively advanced its construction and operating program, and has sponsored a financially successful public system for the distribution of electricity. Furthermore, its national importance has been recognized for defense purposes. Extra provisions have been made by Congress for prompt expansion in plant capacity.

In its electric enterprise, TVA technically constitutes a generating and transmitting system. It generates, transmits, and delivers power wholesale to municipalities, cooperatives, and special industrial users. It is a government-owned corporation as provided for by a special act of Congress. While it is devoted primarily to hydro electric development, it has also steam stations to furnish stand-by power to meet special needs, particularly during low water periods. Its present installed capacity in kilowatts (kw) is as follows at the several dams or other locations:

Present Installed Capacity	Kw
Hydro—Wilson	184,000
Norris	100,800
Wheeler	64,800
Pickwick Landing	72,000
Guntersville	72,900
Blue Ridge	20,000
Ocoee No. 2	18,800
Ocoee No. 1	18,000
Hales Bar	50,500
Great Falls	29,400
Chickamauga	81,000
Hiwassee	57,600
Total hydro	**769,800**

Steam—Memphis	54,000
Nashville	48,000
Hales Bar	40,000
Parksville	13,000
Sheffield	60,000
Total steam	215,000
Total hydro and steam	984,800

The aggregate present hydro capacity is 769,800 kw. This is supplemented by 215,000 kw steam. There is thus a total of 984,800 kw hydro and steam. By the end of 1942, with the emergency program authorized by Congress, the total will reach 1,503,400 kw. By the end of 1945, it will be expanded to 1,695,400 kw.

The several hydro and steam stations are interconnected. With its distributing agencies and wholesale customers, TVA constitutes substantially an integrated territory in the States of Tennessee, Mississippi, Alabama, Georgia, North Carolina, and Kentucky. The former private power companies have been almost altogether displaced by coordinated public organization. TVA owns and operates the generating and transmission facilities, while the other agencies own and operate the distribution systems. The private properties have been purchased principally on a negotiated basis at prices sufficiently liberal to liquidate the senior securities outstanding and to leave a considerable margin for the common stock.

At the close of 1940 TVA had seven multi-purpose system dams which supplied the power stations then in operation: Wilson, Wheeler, Guntersville, Chickamauga, Pickwick Landing, Norris, and Hiwassee. Their total investment amounted to $205,758,000, of which 52 per cent or $106,351,000 has been allocated to power. In addition, there has been the cost of transmission and electric plant purchased from private companies. The total direct and allocated power investment as of June 30, 1940 amounted to $192,309,000.

For the fiscal year ended June 30, 1940, TVA sold an aggregate of 3,630,000,000 kilowatt hours (kwh) of electricity, and received $15,125,000 in aggregate electric revenues (round figures). Its average receipts came to 4.17 mills per kwh. Of the total sales, 1,540,000 kwh were sold to municipalities for $6,678,000, an average of 4.34 mills per kwh.

From the standpoint of public ownership, TVA accomplishments are best judged by the results of municipal operation. During the fiscal year ended June 30, 1940, TVA served an aggregate of 106 municipalities which own and operate their own distribution systems. With some minor adjustments, they had in effect the standard retail rate schedules prescribed by TVA as a condition of purchase. The average residential bill for all the municipalities amounted during the year to 2.15¢ per kwh. For commercial sales the average was 2.14¢ per kwh; industrial, 0.82¢; other sales, 1.26¢; total sales, 1.38¢. These averages are far below those of any private utility system.

At these low rates the financial results of municipal operation are particularly significant. The gross revenues for the 106 municipal systems amounted to $21,624,000. The net income, after all operating expenses, maintenance, depreciation, and allowance for taxes and equivalents, and with inclusion of all income items, was $6,057,000. Then, after total interest of $2,034,000 there was a net surplus of $4,023,000. This was nearly 20 per cent of the gross electric revenues. It was available for debt amortization, plant additions, subsequent rate reductions, or other purposes as determined by the managements. It was a remarkable result in the face of the very low rates.

The total book cost of the 106 municipal systems was $89,079,000; the number of customers 387,000; cost per customer $230. The aggregate long term debt outstanding was $78,437,000; net interest payment $2,034,000; average interest rate 2.6 per cent. This low return requirement is one of the leading factors of low rates and financial success.

Among the 106 municipal systems,

the four large cities (Chattanooga, Knoxville, Memphis, and Nashville) made an excellent showing for their first full fiscal year of public operation. They sold an aggregate of 1,047,000,000 kwh, and obtained gross revenues of $13,656,000. After paying all operating expenses, maintenance, depreciation, and tax equivalents, and taking into account other income, they realized a net income of $3,945,000. With interest payment of $1,194,000, they had a net surplus of $2,751,000.

Their total plant cost was $54,506,000; the number of customers 193,000; cost per customer $280. Their long term debt, mostly revenue bonds, amounted to $50,539,000; the interest payment of $1,194,000 averaged 2.4 per cent. While the plant cost per customer is rather high, due to purchase price paid for the displacement of the private companies, the extremely low interest rate far overbalances any excessive payments. The 2.4 per cent compares with 6 per cent and over mostly obtained by private power companies.

Another significant aspect of the TVA municipal operation is the great stimulation in consumption, especially for domestic use, produced by low rates. For all the municipalities the average annual residential consumption amounts to 1,331 kwh. In seven instances the average exceeded 2,000; the highest was Tupelo, Miss., 2,486 kwh. For Chattanooga it was 1,905; Knoxville, 1,436; Memphis, 896; and Nashville, 1,813. No private utility system operating in numerous communities has developed such large consumption. The countrywide average is about 800 kwh. The low rates represent (1) the low wholesale price, (2) the advantages of low interest rates, (3) low administrative overheads, and (4) the economies attained through public planning and coordination.

BONNEVILLE

The Bonneville project on the Columbia River, about 40 miles east of Portland, Ore., went into real operation during the fiscal year ended June 30, 1940. Transmission lines have been built to market the power. Contracts have been entered into with public agencies, cooperatives, public utilities, and industries. For the year, total generation was 208,059,000 kwh, sales 190,220,000 kwh.

Since the close of the fiscal year, output and sales have climbed rapidly. In June, the last month of the fiscal year, the generation was 25,458,000 kwh. The peak month up to that time had been 28,500,000 kwh (December, 1939). But, in July, 1940, generation reached 36,739,000 kwh, and in August 55,912,000 kwh. With the rapid rise in industrial power requirements for defense purposes, all the power will doubtless be needed as the installation becomes available.

The dam and generating plant are operated by the Army engineers, while the marketing, including the transmission system, is under the management of the Bonneville Administrator, Dr. Paul J. Raver, appointed by the Department of the Interior. At the end of November, 1940, contracts for wholesale delivery of energy included 10 municipalities, nine public utility districts, five cooperatives, three private utilities, and four industrial concerns. The contracts are on a kw demand basis and call for an aggregate of 216,300 kw.

The initial installation at Bonneville was 86,400 kw, consisting of two units. According to construction schedule two units, 108,000 kw, are to be added in January, 1941, then annually two units, until the total capacity will reach 518,400 kw in 1944.

Further transmission lines will be necessary to furnish the additional market requirements as plant capacity is increased. The transmission and marketing plans will provide also for the output from Grand Coulee. This likewise is on the Columbia River, in the State of Washington, about 450 miles farther upstream than Bonneville. According to schedule, Grand Coulee will make available 105,000 kw in August, 1941, and then in two stages will be increased to 315,000 kw by February, 1942. The aggregate capacity of Bonneville and Grand Coulee will be 833,400 kw.

The rate schedules have been planned so as to stimulate consumption and to cover the cost at high utilization. They are approved by the Federal Power Commission. In furnishing power, preference must be given to public bodies (mostly municipalities and public utility districts), and to cooperatives. The standard contracts apply mostly to "on site" delivery and transmitted delivery. On the first basis, the standard rate is $14.50 net per year per kw of billing demand; on the second $17.50. Because of the diversity factor, the combined demand of all purchases is naturally much less than the total billing demand covered by the contracts. For the fiscal year ended June 30, 1940 the average receipts amounted to 1.93 mills per kwh. The total revenues for the year amounted to $367,970.

The Bonneville management, like that of TVA, is concerned not only with providing wholesale hydro power, but carrying the advantages of low cost power to the ultimate consumers. The average residential rate in the publicly owned distribution systems was 2.32¢ per kwh during the last six months of the fiscal year 1940; the commercial 2.42¢, and street lighting 1.10¢.

These are woeful figures for private managements in regions not yet penetrated by publicly organized power. They are, moreover, reinforced by the accomplishments of Tacoma and Seattle in the same general territory. They have been outstanding in exemplifying the advantages of public organization. Their rates, especially Tacoma's, have long been among the lowest in the country, average consumption among the highest, and the financial results among the best.

The Federal policies in operating the large hydro projects are bringing about large low rate areas compared with other sections of the country. This applies particularly to TVA, Bonneville (including Grand Coulee) in the northwest, and Boulder Dam in the southwest. For the future any large Federal project or system will doubtless create similarly low rate territories. Such regions introduce a new competitive factor for industrial development which will affect all sections of the country.

The low rates will not only bring pressure for rate reductions in localities served by private utilities, but also outright shift from private to public organization. This would involve much lower returns on capital, reductions in managerial expenses, and superior planning and coordination of properties. This has been the signal experience in the TVA and Bonneville areas, and is basic to really low rates anywhere. It is even more important than public generation and transmission.

THE ST. LAWRENCE PROJECT

During 1940 the long discussed St. Lawrence River project moved forward to the point of apparently imminent realization. The prerequisite agreements were reached in the form of a treaty between the United States and Canada. This treaty will be one of the major measures for early Senate action in the 1941 session of Congress.

The St. Lawrence project involves not only electric power but improvements to navigation so that ocean-going vessels can operate through the Great Lakes. It is now being presented not only from the standpoint of ordinary national advantages but particularly as a matter of defense. It is meeting, however, strong opposition, which includes especially public utilities fearful of Federal encroachment in the electric power domain.

The St. Lawrence project involves an aggregate capacity of about 2,000,000 horse power. Half of this would go to Canada and half to the United States. The latter part would provide roughly 5,000,000,000 kwh of energy per year. Under prevailing understandings, the development would be undertaken by the State of New York through its Power

Authority. This body has also in view hydro expansion on the Niagara, which would produce a further annual aggregate of about 5,000,000,000 kwh. The energy would be transmitted to the principal load centers and would be designed especially to carry the base loads of the state. The generating costs, including depreciation, interest and amortization, would probably come within 1.25 mills per kwh. To this would have to be added the cost of transmission to reach the principal load centers of the state.

Under the present statutory program St. Lawrence power would be distributed through private utility companies under contract with the Power Authority. Actual experience, however, will probably follow TVA and Bonneville. If the advantages of low cost power are to be conveyed to the ultimate consumers, public organization will probably be necessary not only in generation and transmission, but also for distribution.

SUPREME COURT DECISION IN THE NEW RIVER CASE

The trend of recent years has been definitely toward Federal or other public development of hydro electric projects. This has been due primarily to depression conditions of unemployment and to the low cost of public money.

These inherent economic forces are now augmented by the urgent need of national defense. There will be vast increasing needs for additional electric power. According to the November report issued by the Federal Power Commission, there is already a distinct power shortage for the country. This condition will greatly enhance the pressure for Federal and other public hydro electric developments.

This combination of economic and defense factors has been further sharpened through a far-reaching decision in December, 1940, by the United States Supreme Court in the long pending New River case. This involved a project in North Carolina on the part of the Appalachian Electric Power Company. This company owned riparian rights, and has insisted that it could proceed with dam and plant construction without a license under Federal law from the Federal Power Commission on the ground that the New River is not a navigable stream at the place of construction. The Federal Power Commission, however, has held the contrary view, that a license is necessary, and that the regular conditions with respect to cost, duration, amortization, and Federal acquisition apply.

The lower Federal courts had ruled with the company. This decision was reversed by the Supreme Court. It held that navigability under the law can not be construed narrowly as of actual use for navigation and that, furthermore, the Federal interest involves the entire relation of a river system to interstate commerce.

Under this decision, the Federal Government will have control of practically all future hydro electric projects throughout the country. With the economic and defense impetus, the Federal plans will doubtless be greatly extended to include comprehensively the various river systems. The past opposition by private companies and states has precluded the Federal undertaking of important projects which could not readily be brought within the limited concept of direct improvement of navigation.

SECURITIES AND EXCHANGE COMMISSION ACTIVITIES

Outside of the public power projects, the Federal Government has been concerned also with the regulation and readjustment of private electric systems. Significant progress has been made by the Securities and Exchange Commission (SEC) in carrying out the requirements of the Public Utility Holding Company Act of 1935. Among its chief aims is corporate simplification and territorial integration of the holding company systems.

Enforcement of these provisions was delayed by litigation which involved the power of SEC to require registration on the part of the holding companies and their subsidiaries. The opposition was nullified by the Supreme Court in 1939, in the Electric Bond and Share case. Following this decision, SEC proceeded actively to bring about corporate simplification and territorial integration. By the end of 1940 it had instituted formal integration proceedings with respect to nine major holding company systems comprising nearly 58 per cent of the total assets of all the systems registered under the act. Simplification proceedings were started in five instances. Efforts to encourage the filing of voluntary plans were unsuccessful.

With regard to integration, every holding company system must be so readjusted as to consist of an integrated area which is continuous as to location and is thus economically operated. It can, however, have also a second or more integrated areas, provided that these are in the same or in adjoining states. Under these provisions, extensive transfer or disposition of properties will be necessary. Apparently the sale of the common stock of local operating companies to the general public will be the method used in instances where the stock can be sold on favorable terms. A notable instance is that of the Indianapolis Power and Light Company. This was a subsidiary of the Utilities Power and Light Corporation. During the early part of 1940 the common stock was sold at $24 per share. This was predicated primarily on the net earnings of the company realized under high rates rather than upon the intrinsic fair value of the properties considered from the consumers' standpoint.

Similar dispositions are in prospect in other instances. They will naturally raise new problems and difficulties for the communities served. Not only new managerial control, but new vested interests will be created. The prices paid for the stock will be claimed as the proper basis of returns to be obtained by the purchasers. Such returns, obviously, would "freeze in" existing high earnings and rates. Most private readjustments will probably make more difficult the attainment of needed rate reductions. These conditions may prompt municipalization of the electric properties.

Among other activities of SEC have been several investigations of alleged violations of Section 12 (h) of the act. This prohibits registered holding companies and their subsidiaries from making political contributions. Three former officials of the Union Electric Company (Missouri) were indicted for perjury in connection with the investigation. Evidence showed that over a period of years the company had made political contributions from a large slush fund built up from kickbacks received from attorneys, contractors, and other polluted sources. SEC also has continued its scrutiny of capital structures to bring about proper stock equities. It gave increased attention to the adequacy of annual depreciation charges. It has further promoted "arms-length" bargaining in the issuance of new securities.

ACTIVITIES OF OTHER FEDERAL COMMISSIONS

Besides SEC, the Federal Power Commission has also participated in obtaining better power conditions. It advanced the readjustment of plant accounting on the actual cost basis, according to its new system of accounting. It made investigations with respect to rates applicable to interstate movements of power. It has cooperated with state commissions and municipalities in furnishing advice and technical assistance. It continued its reports on comparative electric bills. And, as previously referred to, it made a study of national power resources and reported shortages with relation to the increasing defense activities.

Apart from electric power, the Federal Communications Commission continued its activities in bringing about reduction in interstate telephone rates. It also assisted state commissions and municipalities in making investigations for the purpose of local rate reductions.

NEW YORK CITY TRANSIT

Among municipal developments, the most striking has been the realization of rapid transit unification in New York City. This became effective in the middle of the year. The city acquired all the rapid transit properties previously operated in two private systems, also the surface and bus properties in Brooklyn and Queens. All were joined with the previously existing independent city system.

The unified properties are operated by the Board of Transportation, a special department of the city. The new transportation system thus established is by far the largest municipally owned and operated utility in the country. It includes all the subways and elevated lines, also surface transportation in Brooklyn and Queens. The total unification price was $316,998,000, and the total city investment in transportation properties is about $1,500,000,000. The acquisition was financed principally with the proceeds of $315,000,000 of 40-year city corporate stock which was especially exempted from the constitutional debt limit.

The magnitude of this new municipal transit system appears further in the principal property and operating figures. Exclusive of yards, there are 758 miles of rapid transit track, 434 miles of trolley track, and 89 miles of bus routes. There are 7,849 rapid transit cars, 1,387 trolley cars, and 316 buses. For the first three months ended Sept. 30, 1940, the passenger revenue amounted to $26,185,000. This was derived from 427,053,000 rapid transit passengers, 77,641,000 trolley, and 18,641,000 bus, or total 523,335,000 passengers. The estimated passenger revenue for the fiscal year ended June 30, 1941 is $112,000,000. The number of employees, operating and supervisory, as of November, 1940 is 31,900.

The new city system took over virtually the entire operating organization of the superseded private companies. This absorption of employees has created problems whose disposition is likely to have countrywide influence on labor's attitude toward public ownership. The employees taken over had been organized mostly, or to large extent, in unions which had agreements with the companies. The transfer has naturally raised the question of union status and collective bargaining. While the employees will get the benefit of civil service rights, they hold also to their union rights. This issue reached a critical stage near the close of the year, but the prospects are that a settlement will be reached through which both unions and civil service standards can be harmonized satisfactorily both to the workers and the city.

WATER SUPPLY

By Robert Spurr Weston

Weston & Sampson, Boston

PUBLIC EXPENDITURES FOR WATER WORKS

The minimal cost of water works in 1940 as reported by *Engineering News-Record* was $69,704,000. This is but 42.8 per cent of the $162,921,000 for 1939. Both estimates include relatively small expenditures for public works and exclude works costing less than $15,000. The expenditures for water works are estimated at only 2.5 per cent of the expenditures for public works of all kinds. However, during the latter part of 1939 and up to January, 1941, many contracts were let for the water works required by airports, arsenals, cantonments, factories and other military and naval establishments.

BOSTON WATER SUPPLY DEVELOPMENTS

The increase in storage in the 415,000,000,000-gallon Quabbin Reservoir for the supply of Metropolitan Boston has been affected somewhat, but not materially, by the drouth which has prevailed in the northeastern states. By the end of 1939 about 74,000 M.G. had been stored. At this rate, and with increasing evaporation as the reservoir fills, it is expected that at least three years more will be required to fill the reservoir. The cost of the new Quabbin System and appurtenances will reach about $72,700,000.

The new pressure aqueduct extending from the older Wachusett Aqueduct to the Boston District was formally opened on Oct. 23, 1939, into the new Norumbega high-service distributing reservoir which stores about 150 M.G. The new works raise the hydraulic grade of the system at the new reservoir by about 75 feet. With the older Weston Aqueduct and mains left for supplying the low service system and with the extension of the pressure aqueduct by tunnel to Chestnut Hill, about seven miles west of the center of Boston, all pumping to the Southern High Service System will be avoided. Pumping to the Northern High Service System can also be avoided in the future by extending the same tunnel in the form of an encircling loop about the water district.

NEW YORK

Work on the urgently needed additional supply for the City of New York from the Neversink and Rondout Reservoirs is progressing. This work includes 135 miles of tunnels, 13.5 to 19.5 feet in diameter in deep rock, 85 miles of which are now being driven at record speed. The Merriman Dam on Rondout Creek will be about 200 feet high, with a cut-off wall made up of caissons carried through the earth to bed rock 200 feet below.

The development of these additional works within the Delaware watershed was delayed by legal battles and the depression, and the beginning was not possible until 1936. The first stage of the development will result in an increase of 170 M.g.d. in the supply.

At the beginning of the year, New York, with a storage capacity in its reservoirs of 288,000,000,000 gallons, had only 125,000,000,000 gallons left. In March, this reserve had been reduced to 80,000,000,000 gallons. The sources have a safe yield of about 800 M.g.d., which in 1939 was slightly exceeded by the demand, and measures to reduce consumption and stop waste were taken in the emergency. Fortunately, heavy rains occurred in the late spring, and on May 27 the reservoirs were full and overflowing.

COLORADO RIVER AQUEDUCT

The formal opening of the Colorado River Aqueduct which supplies the Metropolitan District of Southern California occurred in October, and rapid progress has been reported on the elaborate and beautiful softening plant which is required by its hard water. It is the "plant of the year". Not many realize that part of the Metropolitan District would be a desert were it not for the bringing in of water from distant sources. The accomplishment is a tribute to the foresightedness of the engineers of the District, particularly the late William Mulholland, C. E.

PURIFICATION PLANTS

Among the new water purification plants built during the year are those at Toronto, at a cost of over $14,000,000, and at Raleigh, N. C., Milwaukee, and Toledo, O. These are among the most modern and beautiful in America.

Some cities are realizing that neither water purification alone nor sewage treatment alone is adequate to protect the health of the inhabitants of the cities, especially on the Great Lakes, even when outfalls and intakes are seemingly remote from one another.

Milwaukee with its elaborate and

effective sewage treatment works has just placed a $5,000,000 water purification plant in service, and Chicago after trying to protect its intakes by chlorination and by diversion of sewage to the Mississippi River, a practice now limited by order of the Supreme Court, is spending $21,000,000 to construct the largest (320 M.g.d.) purification plant in the world on the South Side, where sewage pollution from Indiana cities is a great hazard. This plant will supply 38 per cent of the city's population and will probably be followed by other plants.

Analogous conditions exist in other lake cities, like Cleveland where its new Nottingham water purification plant will add a capacity of 200 M.g.d. to the 135 M.g.d. now possessed by the older works. Toronto is planning to add a sewage treatment works to cost $5,500,000.

STREAM CONTROL

The demand for better raw water quality in interstate streams, some of which must necessarily be used for both water supply and sewage and waste disposal, has led to the approval by Congress of two interstate compacts for the sanitary control of the respective Ohio and Potomac Rivers. This is a progressive move and resembles what has been successful in England. It is far better than the general control of streams by Federal authority.

The problem of stream control is a serious one. During the year, Bethlehem and Harrisburg, Penn., felt obliged to abandon the polluted Lehigh and Susquehanna Rivers in favor of upland sources. Philadelphia is planning to spend $18,000,000 to rehabilitate its existing works which are supplied from the polluted Schuylkill and Delaware Rivers. Buffalo is attacking the problem by abating pollution on the Niagara River.

WATER HARDNESS

It is slowly but increasingly being realized by consumers that no municipality can afford hard water. However, what is called hard water varies. Communities in the east, near cities like Boston, New York, Baltimore, and Atlanta, which are supplied with water having a hardness of less than 20 parts per million, call any water hard which has a hardness of more than 35 p.p.m. Farther west, a hardness of 60 p.p.m. designates a soft water, while in other parts of the country a hardness of even 120 p.p.m. is unobjectionable.

Hard water causes waste of soap and reduces life of laundered fabrics, heating coils, automobile radiators, and other devices using hot water, and impairs the efficiency of steam boilers. It prohibits many industrial processes. Howson estimates that in Wisconsin, omitting the Lake Michigan supplies and assuming a water with a hardness of 85 p.p.m. as soft, hardness costs 774,000 people $3,680,000, or $4.89 per capita per year. The writer found that at South Orange, N. J., where the hardness is reduced from 155 to 35 p.p.m., the saving in soap alone amounted to one-and-one-half times the cost of softening.

ESTHETIC IMPROVEMENT

Consumers are becoming increasingly dissatisfied with waters which have no characterization other than sanitary safety. The demand for waters of good appearance, free from turbidity, low in color, and free from disagreeable taste and odor is becoming paramount. For example, a generation ago little attention was paid to color. A few years ago the U. S. Public Health Service set a limit of 10 p.p.m. for the color of water to be used in interstate commerce. This color would be barely noticeable in a tumblerful of water, yet in Massachusetts in 1938, of the 126 municipalities supplied with surface water, 68 were using water having a higher color. Of the highly colored supplies, 13 were treated to reduce color. Of the eight cities having populations of over 100,000, only two were supplied with water of a color lower than 10 p.p.m., one with purified surface and one with purified ground water. This condition is not pleasing to those who travel, use nearly colorless water, and come home to use a colored one. The exertion of their influence for betterment usually follows.

While chlorination of water, as practiced at Chicago, Milwaukee, and other cities on the Great Lakes, has lowered the typhoid fever death rate greatly, it has also caused aversion among those, travelers especially, to whom the chlorinous tastes are objectionable. Some cities, Milwaukee for example, tried to avoid water purification by elaborating sewage treatment, but the present trend in the lake cities, as elsewhere, is towards better sewage treatment and also towards sufficient water purification to produce an agreeable as well as a safe water.

Chlorination will not be abandoned. It is an admirable single line of defense against disease, but it will be more and more used as a secondary defense in connection with other methods of purification, notably long storage, chemical treatment, and filtration. Under these conditions, its dosage will be minimal and unobjectionable.

CORROSION

Some of the worst appearing waters are those which corrode piping, tanks, and fixtures, particularly those of iron or steel. Copper is also acted upon by some waters. The results are "red water" and blue stains on white plumbing fixtures for the respective metals.

While the corrosive action is of great importance economically, and because it affects the life of water works structures, the control of it by treatment is more likely to follow complaints due to bad appearance of the water as drawn from the taps, particularly those in bathrooms, laundries, and lavatories.

The usual method of control is to add an alkali to the water. Sodium carbonate is sometimes used, but the alkali most frequently indicated is lime. This treatment is effective in reducing the aggressiveness of the water and also in forming protective coatings on the metal. It is low in cost and relatively easy to apply. On the other hand, it has the disadvantage of increasing the hardness when added to soft waters.

During 1940, considerable use was made of sodium hexametaphosphate to control corrosion. Where effective, only small doses are required, and it apparently acts by forming a molecular film on the surface of the metal whose protection is desired. This chemical also has a purging effect which tends to rid distribution systems of accumulations of iron rust, thus increasing their carrying capacity.

WATER-BORNE DISEASE

It is difficult to realize that in the registration district of the United States the typhoid fever death rate per 100,000 has been reduced from 7.8 in 1920 to 1.5 in 1939. In about 30 large cities no typhoid fever deaths occurred in 1939. Even in such large cities as New York, Cleveland, Chicago, and Detroit, the death rate has been 0.3 per 100,000 and in some cases the deaths which these low rates represent are stated to be non-residents. When one realizes that in 1939 a death rate of only 0.1 per 100,000 for typhoid and paratyphoid fever occurred in Rhode Island, 0.2 in Wisconsin, and 0.3 in Massachusetts, Minnesota, and New York, the sanitary gains in the past two or three decades seem wonderful. At present, typhoid and paratyphoid fever are rural rather than urban diseases, the highest death rates occurring in the southern and southwestern states.

CROSS-CONNECTIONS

In connection with water-borne disease, the problem of cross-connections between polluted and unpolluted water supplies is extremely important. The importance was illustrated on Dec. 11, 1940 by the accidental taking in of 4,000,000 gallons of polluted Genesee River water into the supply of Rochester, N. Y. through a fire service connection. A 10-inch valve had been repaired and was carelessly left open for 17 hours. Following this happening, swift action was taken by the health authorities to minimize its effects. The distribution system was chlorinated, anti-typhoid vaccine was distributed to clinics about the city, and consumers were advised to boil all drinking water. While bacteriological examination revealed gross pollution of the water, no typhoid organisms were isolated, and while hundreds of cases of intestinal disorder were treated, no increase in typhoid deaths had occurred by the end of the year.

Illustrating the importance of the matter of cross-connections is the action of the American Water Works Association which has established standards for hotels, and refuses to hold its annual convention in those which fail or refuse to comply with its standards.

Much remains to be done. In only one-half of the states can control be characterized as good, and in about the same number no rules and regulations exist regarding the matter. Most of the state health departments maintain some degree of control over existing cross-connections. While it would seem that proper existing cross-connections with double check valves of bronze, properly inspected, might be allowed, not all health departments are in agreement regarding the matter. The general opinion seems to be that water works departments and public health authorities should work in a cooperative way toward the detection and elimination of all cross-connections, even in cases like Rochester where two supplies were thought to be permanently separated by permanently closed valves.

RESERVOIRS FOR RECREATION

The widespread use of the motor car and the attractiveness of many lakes and reservoirs supplying water to congested centers of population nearby is causing an increasing demand to use them for recreation, and raising the question of multiple *versus* exclusive use. Moreover, anglers resent the restrictions which seem necessary where upland streams are used for water supply. The trend of public opinion is towards multiple use except where a hazard to the public health is involved. The trend is also away from exclusive reservation of water sources regardless of remoteness of pollution.

With modern methods of treatment, much more boating, fishing and camping may be permitted on catchment areas than formerly when storage alone or storage with chlorination was relied upon.

Like all social problems, the matter should be approached in a sound cooperative spirit, not only by those responsible for water supply and public health, but also upon those interested in forests, streams, and other playgrounds.

NEW DEVELOPMENTS

Several new practices are increasing in use and in importance. One of these is the employment of cathodic protection for water works structures of steel and iron, particularly tanks, standpipes, and large piping. Electrodes are placed in the water and a current of low intensity is passed from them to the points where protection is desired. The result is the formation of a protective molecular film which makes painting unnecessary.

It has been found that certain waters when treated with an ordinary dose of chlorine are extremely disagreeable. Recently, however, it has been found that when doses of chlorine are carried to what is called the "breaking point", where no more chlorine can be added without supersaturation, waters of agreeable appearance are produced. At Ottumwa, Ill., where excessive pollution of the raw water existed, the effective dosage of chlorine was found to be about 950 lbs. per 1,000,000 gallons. Other cities have used doses of from 40 to 100 lbs. per 1,000,000 gallons of water with great improvement in odor and taste of the delivered water.

WATER RATES

There is much confusion in water rates structures in American cities, and the year records several studies looking to their betterment. To make fair rates to those served by works supplied by fire hydrants, industrial, domestic, and other service is difficult, especially where some free service is given, as for fire protection and municipal and charitable uses. The tendency is toward payment by all users in proportion to use, with a fair readiness-to-serve charge for services like fire protection which involve a relatively large investment and small operating and maintenance charges.

WATER SUPPLY FOR DEFENSE

The problem of defense naturally involves the protection of water works and the supply of cantonments, navy yards, and more industries. Should the country be drawn into war, the supply in combatant zones will also become vital.

During the year, water works authorities gave these matters increasing attention. Committees of the various water works associations and engineering societies made reports and held round-table discussions, and many engineers hastily prepared designs for works for camps and military and naval establishments. The technical departments of the Army and Navy were also active.

While construction is being given much attention, the matter of protection against sabotage is realized to be of great importance. No longer does the war machine confine its operation to battle fields and oceans. It invades the harbors and homes of nations. It strikes at the life blood of cities and towns and their vital industries, both by attacks from without and sabotage from within. Large supply mains have been bombed in London. Some aqueducts, dams, and filter plants are vulnerable. Especially liable are the distribution systems. It is, therefore, eminently fitting and proper that the managements of works are giving attention to the methods of protecting their works against attacks and of repairing them after direct damage by belligerents from without and especially by saboteurs from within.

STREET AND HIGHWAY TRAFFIC

By Ernest P. Goodrich

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GENERAL

It was estimated that a total of 31,560,000 passengers and motor trucks were registered for the year 1940, 27,052,000 being passenger cars.

There were 27,360 deaths from motor vehicles during the first 10 months of the year. The probable total for 12 months was estimated would be 34,500. Eight of the states had fewer fatal automobile accidents in the first 10-month period of 1940 than they had in 1939. However, the number of motor vehicle deaths matched the increase in automobile travel, and the mortality figures based on mileage indicate that the prime factor in higher deaths was a result of the increased number of automobiles in use and the increase in their average use.

A study made by an insurance company showed that the economic improvement resulted in the purchasing of 1,000,000,000 gallons more of gasoline than the previous year and 600,000 more automobiles.

HIGHWAYS

Consulting engineers on the Henry Hudson Parkway feel that elevated highways cost less than depressed ones. The big cost factors in the latter are land value and relocation of utilities underground. An engineering magazine suggested that elevated highways are the most economical way of relieving congestion in cities, as they cost no more than street widening; and that arterial highways through cities and by-passes around them must be protected from local encroachment.

Elevating curbs were installed to convert Chicago's new eight-lane highways into separate roadways of two, four, or six lanes each. Six-lane highways are to be used for the rush hour and four lanes each way for other hours. Each line of curb, divided into 25-foot sections, retracts into an under-pavement slot. In the morning when southbound traffic is heaviest the southbound lane is widened to include 1/2 of the northbound lane, while in the evening when northbound traffic is again heavier the northbound lane is widened to include 1/2 of the southbound one. During the day the roadway is divided equally. This plan increases the street's capacity 53 per cent. This convertible highway is a part of the program of modernizing the Lincoln Park highway system.

Detroit solved a paving problem by constructing parking gutters which will resist the constant heavy parking load to which they are subjected. Non-skid sheet-asphalt was used for these gutters and proved to be economical.

In the state of Washington 60 per cent of all accidents occurred on city streets with 40 per cent on rural highways. When only fatal accidents were considered, it was found that the state highways and city streets were equally hazardous, but county roads had a still higher fatality rate per mile of vehicle. The advance in automobile design beyond that of street and highway capacity, and their increasing use, are responsible for the traffic problem.

SIGNS, SIGNALS, MARKINGS

The purpose of the directional and regulatory signs for highways is to keep high-speed traffic moving at an efficient rate and to provide the motorist the utmost in safety. This is the latest development in scientific research.

The feeling has grown that drivers will obey reasonable restrictions provided they are consistent. Therefore, adequate street signs should be considered from the standpoint of visibility, simplicity, (with the fewest number of short words as possible), and uniformity—identical signs for identical situations to prevent confusion.

Important factors in the effectiveness of traffic signs are the correctness of their message, size, clarity, style, and appearance. A movement was started to use larger signs than those specified by the American Engineering Council, the American Association of State Highways Officials, and the United States Public Roads Administration.

Clear-cut directional information is important as well as local traffic information on speeds and parking. This information should be furnished by signs, traffic signals, parking meters, and street markings. Symbolistic signs at intervals along the road to an important point of interest or utility were concluded to be very helpful. The visibility of highway signs had previously been based on personal impressions. A method by which the results could be expressed in numerical terms was devised. Different signs were illuminated at set distances with a set of headlamps and quantitative measurements of visibility were taken.

It was found that traffic signals at school crossings have little educational value, failing to develop judgment. A plan whereby portable "children crossing" signs were placed before the crossing and used only when the problem exists was devised. The crosswalk involved was marked and a properly trained school safety patrol was on duty. This plan was found safer because children will cross at the most opportune times rather than depending on drivers to see the traffic signal to stop.

Traffic signals in the business district of Seattle, Wash. were constructed to be operated progressively by controls in a room at police headquarters. The dials for each intersection are clearly visible on the switchboard so that all traffic signals can be seen. When a signal light fails to function, a "marginal" relay in the relay box at the corner lights a pilot lamp on the switchboard. An emergency car equipped with a police radio so that it can be called at any time keeps the signals burning. Signal timings are changed on various streets to fit the amount of traffic.

A highly efficient traffic line marking unit applying single, double or triple center lines in one, two, or three color combinations was announced by a leading company in Wisconsin.

A hand or self-propelled type of traffic line marker was put on the market, and a self-contained portable unit for marking traffic lines on highways, streets, and airports and also tennis courts was introduced.

A simple method was devised to apply center-stripes that won't wear out. A deposit of black oxide of iron saturates the concrete and chemically treated magnetic iron oxide is blown on the fresh concrete by means of a lime duster and smoothed out with a wooden float and then a steel float. A bridge on wheels, similar to a pavement finisher is used to make the line sharp and accurately straight.

Virginia adopted a new system of highway markings to eliminate head-on and side-swiping collisions. Single broken lines are used on two-and-three-lane highways, except on hills, curves, and intersections. A double solid line is used in the center of a four-lane highway and the lanes on each side of the double solid line are divided by single broken lines.

LIGHTING

The New Jersey State Highway Department experimented with a new system of lighting for directional signs. Twenty-watt fluorescent tubular lights were used. They provide a better color of light, diffuse the light much better, and cost half as much to operate as the old style lights.

Hartford's new system of street lighting resulted in a net saving of $60,000 in property damage, the saving of 11 lives and reduced accidents.

A black-surfaced street in Wauwatosa, Wis. proved to be very hazardous, and a new system of lights was installed to provide silhouette as well as direct lighting of any person or object in the driver's path.

Los Angeles became adequately lighted with sodium vapor lamps at intersections and extra lighting on streets.

Residential sections deserve as much attention when it comes to street lighting as do the heavy-traffic routes. A well-lighted section prevents burglaries and assault as well as eliminating accidents due to insufficient lighting.

SAFETY MEASURES

A new committee to study city highway and mass transportation programs was appointed by the American Society of Planning Officials. The group plans to study problems affecting traffic flow during the morning and evening rush hours, adequate parking facilities, and other traffic matters.

A radio program explaining traffic laws proved a great help to citizens of Los Angeles. Motorists may notice a bush or limb which hides the traffic signal, or the signal timings are too short, or traffic signs may be down or a street light may be out. They are encouraged to report these to the Traffic Tribunal which investigates each carefully and proper action is taken.

Oakland's remedy for traffic accidents was to build safety into streets. Notes were made as to what caused accidents and proper precautions were taken. Warning, Caution, and Direction signs were effective to facilitate traffic movement. Care was taken in the number of signs as too many would prove to be confusing. Channelization structures were constructed to handle traffic load by continuous movement. Curbs were constructed of white cement to increase night visibility. The installation of effective lighting to increase visibility also proved to be a safety measure.

Extra precautions were taken in Kansas City, Mo. to decrease night accidents. Policemen were assigned to hazardous intersections, and the speed for night driving was reduced. Definite results were obtained without resorting to a new system of lighting. Pedestrians were a greater hazard at night, and since motorists are forced to obey traffic rules it was felt that pedestrians should also be forced to obey rules which insure their safety.

Among methods which were pressed to reduce traffic congestion were reduction of street-car and bus turns in congested areas, reduction of slack in schedules which occasion loafing along the line, better supervision of operators of transit vehicles who often loaf across signalized intersections causing delays to automobiles, and the control of the hours of commercial deliveries in congested areas.

The most important factor in motor vehicle operation is safety and these facts were taken into consideration in the designing of the Pennsylvania Turnpike—separation of streams of traffic in opposite directions to prevent head-on collisions and elimination of highway and railway grade crossings so that there will be no cross traffic, provide wide smooth shoulders so that in case of emergency cars may park without danger—two-lane pavements in each direction, traffic lanes of adequate width, highway barring of pedestrians, uniform and consistent operating conditions, specially designed access facilities to enable vehicles to enter and leave the highway with reasonable safety, and elimination of commercial and other developments in order to have complete control of the right-of-the-way.

The Nevada State Highway Department made exhaustive studies of sight distances, excessive curves, excessive grades, and super elevations in an effort to keep cars on the right. As a result a state-wide program will include striping and marking of "no passing" zones for approximately 1,300 to 1,500 miles of the state highway system. A solid barrier line was placed in the driver's lane to discourage passing when the driver's sight distance was restricted. Passing is again permitted when the maximum vision is attained.

The Safety Department of the California division of highways devised a new plan for detecting bad driving habits. A motion picture camera was attached to a balloon and was controlled from the ground. It was mounted in such a way that its lens was normal to the ground surface. The motorists were not attracted to the balloon because of its height and therefore no change in the manner of driving was apparent.

The code of ordinance of Bronxville was revised to include a Bicycle Ordinance which requires the registration of bicycles and the observance by cyclists of all traffic rules and regulations. The enforcement of this regulation would reduce accidents and would prepare the youthful riders to conform to the rules of the road, thereby becoming more safety-minded than drivers of today. A card is sent to the parents if a rule is violated, such as, driving on sidewalks, two on a bicycle, reckless driving, and improper equipment. Parents are asked to deprive the child of the bicycle for one week for a first violation, two weeks for the second, and three weeks for the third. If there is a fourth violation the police confiscate the bicycle for six months.

PARKING

The parking problem has been demonstrated to have a material economic effect on even such things as real estate values, and new efforts and devices which are being used are resulting in improved real estate conditions, but the automobile user is no longer accorded the latitudes that have existed in past years.

St. Paul instituted a plan to eliminate all-day parkers and to make available parking space in almost every block in the congested district. A plain-clothes man is assigned a different beat each day and records the parking movements of cars on his beat. The number of available parking spaces is noted. At the expiration of the one-hour parking-time, tags are issued to those cars which remain over the allotted period.

The City of San Francisco and leading stores have become stockholders in a $1,500,000 underground garage project to store 1,800 cars at one time. There are entrances on all four streets of the blocks which are to be used, and it is thought that the project will relieve traffic and increase department-store business.

Kansas City, Kan. made definite plans to provide off-street parking in the main retail business section on nearby lots so that the number of cars that may park will be increased to approximately 2,000. The absence of adequate parking facilities within the business district has led to a decentralizing movement. By placing 30-minute parking meters on the main business street with a 5-cent charge and allowing three hours free parking in the lots, use of these lots was encouraged.

Owners of vacant lots in the central business district of Beverly Hills, Calif. were asked to donate them to the Chamber of Commerce for free parking. The lots were graded, covered with granite and equipped with signs, with no cost to the property owners or merchants. Because of free parking, business has been attracted to that district and new buildings have arisen.

The American Automobile Association urged nation-wide efforts to improve the parking problem. They advocated efforts along other lines by larger cities, since curb regulation can not solve the problem. It was also suggested that cities should secure their own basic facts and should also consider the desires of the motorists as well as determining present transportation and parking practices; cities should also determine objectives and govern parking improvement programs with reference to all-day storage, short-time parking, loading-parking facilities in connection with new buildings; merchants should be encouraged to provide parking facilities; parking facilities should be self-supporting if financed by municipalities; steps should be taken to make effective use of parking spaces on off-street areas which are not used even during busiest hours; cities should study the merit of requiring off-street or non-peak hour loading of merchandise and building codes and zoning ordinances should be studied to determine whether or not an open deck or other low-cost parking structures could be legally constructed.

New Haven's 1,156 penny and nickel meters met with marked success. The penny meters proved to be popular with most motorists and both types continue to have steady earnings.

PEDESTRIANS

To reduce pedestrian casualties in Washington, D. C. new regulations were adopted whereby pedestrians' right-of-way between intersections was made more definite, and they were required to obey official traffic signals and signs. Fines were levied if the regulations were violated.

Detroit installed a chain fence along the outer edge of the sidewalk at two locations to discourage jay-walking. It was found that four out of five adult traffic deaths occurred between 5 P.M. and 1 A.M.

Important steps were taken in Des Moines, Iowa to insure pedestrian safety. Proper street lighting, safety islands, semi-actuated pedestrian control units, "Walk" and "Wait" signals were installed to allow pedestrians to cross wide streets. Rotating school stop signs are used which stop traffic at the times of day when the students are going to and from school. Proper crosswalks and paving markings were also found very essential, as is also education and enforcement of safety regulations.

SPEED

Speed zoning was introduced in Minnesota by the State Highway Department. By the use of certain instruments a practical safe speed limit is set for different sections of roadway according to the conditions involved on that particular strip of highway.

A camera-speedometer can now be secured which gets the miles per hour into the picture.

MEETINGS

At a meeting of the Association of Highway Officials of the North Atlantic States it was pointed out that any highway system on which 32,000 persons were killed and 90,000 permanently injured annually was a failure. Many remedial measures were discussed including New Jersey's experience with reflecting curbs.

At the session of the National Safety Council it was emphasized that it was the engineer's job to make it difficult for the 40,000,000 motorists to drive unsafely.

The opinion was expressed at the American Road Builders Association meeting that the city streets are the weakest link in the highway systems of today.

PERIODICAL PUBLICATIONS

Bus Transportation
330 West 42nd Street, New York City.

Economic Geology
University of Illinois, Urbana, Ill.

Electrical Communication
67 Broad Street, New York City.

Electrical World
330 West 42nd Street, New York City.

Gas Age-Record
9 East 38th Street, New York City.

Journal of the American Water Works Association
22 East 40th Street, New York City.

Journal of Geology
5750 Ellis Ave., Chicago.

National Engineer
176 W. Adams Street, Chicago.

Public Service Magazine
1012 Pioneer Bldg., St. Paul, Minn.

Public Utilities Fortnightly
1038 Munsey Building, Washington, D.C.

Public Works
310 East 45th Street, New York City.

Sewage Works Journal
654 Madison Ave., New York City.

Transit Journal
330 West 42nd Street, New York City.

Water Works and Sewerage
155 East 44th Street, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Planning and Civil Association, 901 Union Trust Bldg., Washington, D.C.

American Public Utilities Bureau, 280 Broadway, New York City.

American Transit Association, 292 Madison Ave., New York City.

American Water Works Assn., 22 E. 40th St., New York City.

Edison Electric Institute, 420 Lexington Ave., New York City.

International Assn. of Fire Chiefs, Police Headquarters, Philadelphia.

National Parks Assn., 1512 H St., N.W., Washington, D.C.

Park Assn. of New York City, Inc., 295 Madison Ave., New York City.

Public Service Commission, State Division, 80 Centre St., New York City.

DIVISION IX

DEFENSE AND ARMAMENT

THE UNITED STATES ARMY

By Robert S. Thomas

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GENERAL DEFENSE DEVELOPMENTS

The year 1940 was replete with activity within the United States Army. New organizational tables were put into effect and field-tested in large scale maneuvers; personnel increases were authorized by Congress, far outstripping any previous peacetime Army strengths; money was appropriated in huge amounts to provide arms, equipment and housing for the expanded force; a Selective Service law was written into the statute books and put into immediate operation. The nation, as a whole, became thoroughly defense conscious and supported all phases of the President's program to put this country into a position of readiness to repel definitely and forcefully any act of aggression which might be launched against it by any foreign power.

On Oct. 20, 1940, General George C. Marshall, Chief of Staff, addressed a letter to the commanders of our four Armies. That letter presented the Army's viewpoint towards its task so clearly as to merit partial reproduction here. He wrote:

"The United States has embarked on an extensive peacetime program of national defense. The President has provided the leadership, and Congress, with the support of the American people, is granting the essential funds. Industry and labor are rapidly mobilizing to produce munitions. The National Guard is taking the field. Recruits are reporting to their regiments in unprecedented numbers, shortly to be joined by large numbers of their fellow citizens, chosen under the Selective Service Act. The preliminaries are over. The task now looming before us is the expeditious development of a unified, efficient fighting force of citizen-soldiers. . . . First in importance will be the development of a high morale and the building of a sound discipline, based on wise leadership and a spirit of mutual cooperation throughout all ranks. . . . The adoption of a peacetime Selective Service system presents a special problem for all components of the Army. The men selected for service, together with those now enlisting, are representative of the citizen-soldier who has always defended our nation in the past. These men come from all walks of life, with widely varying degrees of education, intelligence and native ability. They differ in racial characteristics, religion, philosophy, social training, physical development and material wealth. It will tax the skill and wisdom of leaders of all ranks to mold these citizen-soldiers into a unified Army prepared to accept cheerfully the rigors of long hours of training, the fatigue of marches, and the discomforts and hardships of service in the field. The officers and non-commissioned officers who will have charge of these men must be instructed in advance concerning every phase of their reception, equipment, care and instruction, and the execution must be carried out under the alert supervision of higher commanders.

"In accomplishing the foregoing, there must be no pampering of individuals, no distinctions between men because of their previous military experience or condition of entry into the service. In a spirit of mutual respect and cooperation, the Army of the United States must now proceed with its high purpose of welding from the elements of the American democracy a disciplined, seasoned fighting force capable of defending the nation."

SELECTIVE SERVICE

In a statement made before the House Military Affairs Committee on July 31, 1940, Secretary of War Stimson stressed the need for a selective service law in these words—"If there is any lesson which has been thoroughly proved by history throughout the life of our nation, it is that the only safe and effective way to meet a great war emergency is by the timely creation of a selective compulsory system for raising our armies. The other system, the system of volunteering, has been tried again and again, and in every serious war, as well as in some wars which were not serious, it has proved a costly failure."

After thorough consideration of all phases of the problem, the Congress passed the "Selective Training and Service Act of 1940" on September 14, 1940. The President signed the measure the following Monday, September 16th. The Act provided for the registration of all males between 21 and 35 years of age, inclusive. Training period was set at twelve consecutive months unless extended by the President for the national interest.

On October 16, 1940, men coming within the age brackets of this law were registered and on October 29, 1940, the lottery drawing of numbers to determine order of entry into service was conducted in Washington, D.C.

MANEUVERS AND TRAINING

In the closing months of 1939, military units were routed to southern concentration points for training and maneuver purposes. The plan contemplated divisional, corps, and army maneuvers in sequence. On April 12, 1940 the War Department announced the completion of concentration of an Army Corps, (1st, 5th and 6th Divisions) at Fort Benning, Ga. This force totaling 41,000 engaged in corps maneuvers extending through April 27. In east Texas, another Corps (2d Division and 1st Cavalry Division) began a similar corps maneuver, with 25,000 men, on April 25. These individual corps maneuvers culminated in a field army maneuver on the Texas-Louisiana border from May 9 to May 26, with the two corps opposed to each other for a thorough service test of streamlined organization.

While these early tests were in progress, the War Department was planning the holding of large maneuvers in August with Regular Army and National Guard units jointly employed, together with a large number of Reserve officers. The First Army, Lieutenant General Hugh A. Drum commanding, was concentrated in northern New York, the main maneuver taking place in the Oswegatchie-Grass-Raquette and St. Regis River area. This Army included the 26th, 27th, 28th, 29th, 43d and 44th National Guard divisions and the 1st Regular Army Division, together with certain corps and army troops from both the Regular Army and the National Guard.

The Second Army, Lieutenant General Stanley H. Ford commanding, held its maneuver in the concentration area in the vicinity of Sparta, Wis. This Army included the 5th Division and the 7th Cavalry Brigade (mechanized), of the Regular Army, and the 32d, 33d, 37th and 38th National Guard Divisions, with necessary other small units attached.

The Third Army, Lieutenant General Stanley D. Embick commanding, concentrated in the Sabine River-Alexandria, Louisiana, area. This Army included the 2d Division and the 1st Cavalry Division of the Regular Army and the 30th, 31st, 36th and 45th Infantry Divisions and 23d Cavalry Division of the National Guard.

The Fourth Army, Lieutenant General John L. DeWitt commanding, included in its maneuvers Regular Army and National Guard units from western United States in the 7th and 9th Corps Areas embracing the 3d and 6th Divisions of the Regular Army and the 34th, 35th, 40th and 41st National Guard Divisions. Troops of the 9th Corps Area were concentrated at Fort Lewis, Wash.; for the 7th Corps Area, in the Camp Ripley, Minn. area.

An interesting feature of the winter training for divisions (January, 1940) was the experience of the 3d Division which sailed about 2,000 miles in six Army transports, practiced convoy regulations and landing technique, and then rendezvoused with 75 war-fleet ships about 600 miles off the California coast. The combined forces effected a landing in the vicinity of Monterey, Calif. Included in both the defensive and landing forces of this joint operation were approximately 13,000 men, 75 war ships, 250 Navy and 150 Army airplanes.

ORGANIZATION

The War Department, functioning as the managing agency of the Army, was presided over during the past year by Secretary of War Harry H. Woodring, succeeded by Henry L. Stimson. The office of Assistant Secretary of War was held successively during the year by Louis Johnson and Robert P. Patterson. The Secretary of War was further assisted by General George C. Marshall, Chief of Staff. Under this combined direction, the General Staff and the various arms and branches of the service operate. The advice and best judgment of the Chief of the arms and services reach the Secretary of War through the Chief of Staff and the Deputy Chiefs of Staff (Major General William Bryden; Major General Henry H. Arnold, and Major General Richard C. Moore). During the past year, because of Army expansion, a separate General Headquarters office was established under command of Major General Leslie J. McNair.

Flexibility in command and control is assured by the practice of dividing the United States and its possessions into Corps Areas and Departments, each in turn commanded by a general officer. First Corps Area (Major General James A. Woodruff) headquarters, Boston; Second Corps Area (Brigadier General Irving J. Phillipson) headquarters, Governors Island, New York; Third Corps Area (Major General Walter S. Grant) headquarters, Baltimore; Fourth Corps Area (Brigadier General John P. Smith) headquarters, Atlanta; Fifth Corps Area (Brigadier General Clement A. Trott) headquarters, Columbus, O.; Sixth Corps Area (Brigadier General Charles H. Bonesteel) headquarters, Chicago; Seventh Corps Area (Brigadier General George V. Strong) headquarters, Omaha; Eighth Corps Area (Brigadier General Richard Donovan) headquarters, San Antonio, Tex.; Ninth Corps Area (Major General Ernest D. Peek) headquarters, San Francisco; Hawaiian Department (Lieutenant General Charles D. Herron) headquarters, Fort Shafter, T. H.; Philippine Department (Major General George Grunert) headquarters, Manila; Panama Canal Department (Lieutenant General Daniel Van Voorhis) headquarters, Quarry Heights, Canal Zone and, within this Department, the Panama Mobile Force was commanded by Brigadier General Walter E. Prosser and the Atlantic echelon of that force was under command of Brigadier General Robert H. Lewis; Puerto Rican Department (Major General Edmund L. Daley) headquarters, San Juan, Puerto Rico. These areas and departments are further subdivided into tactical divisions and brigades.

Under the Four Army Plan, providing for the largest groupings of the armed forces, there are the following establishments of Army Headquarters: First Army (Lieutenant General Hugh A. Drum) Governors Island, New York; Second (Lieutenant General Ben Lear) Memphis; Third (Lieutenant General Herbert J. Brees) San Antonio, Tex.; and Fourth (Lieutenant General John L. DeWitt) San Francisco.

The heads of the major sub-divisions of the General Staff are: G-1 (Personnel) Brigadier General William E. Shedd, Jr.; G-2 (Military Intelligence) Brigadier General Sherman Miles; G-3 (Operations and Training) Brigadier General Frank M. Andrews; G-4 (Supply and Equipment) Brigadier General Eugene Reybold; War Plans Division, Brigadier General Leonard T. Gerow.

The Chiefs of the several arms, services and departments are: Adjutant General's Department, Major General Emory S. Adams; Inspector General's Department, Major General Virgil L. Peterson; Judge Advocate General's Department, Major General Allen W. Gullion; Quartermaster Corps, Major General Edmund B. Gregory; Medical Department, Major General James C. Magee; Finance Department, Major General Howard K. Loughry; Corps of Engineers, Major General Julian L. Schley; Ordnance Department, Major General Charles M. Wesson; Signal Corps, Major General Joseph O. Mauborgne; Chemical Warfare Service, Major General Walter C. Baker; Cavalry, Major General John K. Herr; Field Artillery, Major General Robert M. Danford; Coast Artillery, Major General Joseph A. Green; Infantry, Major General George A. Lynch; Air Corps, Major General Henry H. Arnold, and G. H. Q. Air Force, Major General Delos C. Emmons.

ARMY STRENGTH

Regular Army.—The Military Appropriation Act for the fiscal year 1941 provided funds to increase the strength of the Regular Army from 227,000 to its authorized peace strength of 280,000. The First Supplemental National Defense Act, 1941, provided funds to increase Army strength further to 375,000 by providing an increase of 55,000 in the ground forces and 40,000 in the air forces. The increase in ground forces will enable the War Department to set up nine triangular divisions, the complete corps troops of two Army Corps, certain essential G.H.Q., Reserve and Army units and two mechanized divisions. The increase in air forces will provide personnel for additional planes ordered. This increase will be secured in increments so that each increment will be a trained unit by the time its planes are delivered.

National Guard.—Commissioned strength of the active National Guard on June 30, 1940 was 14,561 officers; enlisted strength was 227,627, and there were 214 warrant officers for an aggregate of 242,402, an increase over the preceding year of 42,911.

STRENGTH OF THE REGULAR ARMY BY CORPS AREAS

Corps Area, Department or Country	July, 1939			June, 1940		
	Officers	W. O.	Enlisted Men	Officers	W. O.	Enlisted Men
First Corps Area	469	46	6,331	422	41	6,865
Second Corps Area	1,336	89	17,218	1,234	78	20,303
Third Corps Area	2,067	101	14,349	2,162	97	19,847
Fourth Corps Area	1,303	58	16,702	1,453	62	34,429
Fifth Corps Area	729	47	7,295	797	44	13,110
Sixth Corps Area	583	46	6,822	554	42	9,883
Seventh Corps Area	920	44	11,006	849	42	11,625
Eighth Corps Area	1,690	89	25,545	1,602	92	30,495
Ninth Corps Area	1,332	102	23,140	1,547	106	38,857
Corps Area Totals	10,429	622	128,408	10,620	604	185,414
Departmental Totals	2,723	151	46,154	3,294	159	64,027
Grand Totals	13,152	773	174,562	13,914	763	249,441

Organized Reserves.—This component of the Army, on June 30, 1940, numbered 104,228 officers eligible for active duty and 3,233 enlisted men. Training for periods not exceeding 14 days' duration was afforded 31,741 Reserve Officers while 5,287 enjoyed training privileges in excess of 15 days.

RECRUITING

The original appropriation act available for 1940 provided funds for an average army strength of 165,000, not including 6,415 Philippine Scouts. Increases under the so-called Air Corps and Panama Canal expansion programs, designed to give the Army an average strength of 227,000 enlisted men, were authorized by supplementary appropriations and by Executive Order. By intensive recruiting efforts this total was reached on Feb. 7, 1940. From February to May, recruiting efforts, therefore, were limited to reenlistments. On May 15, 1940 a further increase of 15,000 was authorized, and on June 19, 1940 additional numbers were allotted to bring enlisted strength to 280,000 by August 31. The Army Recruiting Service then put on its second intensive campaign of the year with outstanding success. During June, 23,990 enlistments were made, establishing a new monthly record for peacetime enlistments. Recruiting for the Regular Army Reserve resulted in a net gain of 8,719 for the year.

FIELD ARTILLERY

This combat arm increased so that there was accomplished the organization of the full complement of Division Artillery for nine Regular Army Divisions, two armored divisions, two observation battalions, and one corps artillery regiment. A new principle of organization for divisional artillery was adopted, and many major units were concentrated for training, both for army maneuvers in various areas and for permanent station, generally in new cantonments. All motorized units in service on March 1, 1940 were re-equipped with new motor transportation and the weapons adopted during the year included the 105-mm. howitzer M 2, and the 75-mm. gun M2A3.

For the future the following problems are under study in this arm: The complete equipping of all new field artillery units, and bringing them to a proper state of combat efficiency by coordinated training methods; the development of new medium and heavy weapons and of certain auxiliary weapons; the completion of the field artillery literature project; the obtaining of satisfactory technical maps for fire control; and certain modifications in tactics and technique suggested by a study of developments in the European War.

SIGNAL CORPS

During the year, this Corps prepared and released to the service 23 training films and 22 film strips. The subjects covered included the use of truck-drawn units in combat, defense of infantry columns against attack aviation, the mechanics of effecting river crossings, the illustration of various types of ordnance material, and considerable footage dealing with medical subjects such as control of intestinal diseases, first aid and sanitation, and consideration of water supply and purification. These visual aids are being filmed on 16-mm. and 35-mm. sound films and, to facilitate their use, are being placed in newly established film libraries and in Corps Area and Department headquarters.

CORPS OF ENGINEERS

The principal activities during the year involved recomputation of requirements for both the current and war procurement programs, extensive studies in connection with changes in existing engineer equipment, development of new equipment, and adaptation of commercial equipment to military needs. This phase received particular attention because of the increased need for mechanical equipment, due to the trend for mechanization and motorization of the Army, and for streamlining its tactical components. The problems incident to these activities were emphasized by the fact that all branches of industry were called simultaneously upon by the Army and Navy to participate in the munitions program, a fact which definitely limited the capacity of some for their normal products in which the Corps of Engineers had a primary interest. The problem of supplying equipment to all newly created units is a considerable one, and the procurement of large quantities of equipment increased the storage activities connected with storing and issuing such equipment.

CAVALRY

All Tables of Organization pertaining to Cavalry units were redrawn in order to keep pace with recent developments and to provide for attaining war strength. All training literature was similarly revised, including Field Manuals, Mobilization Training Programs, and cavalry sub-courses for the Army Extension Courses for 1941-42.

Picture plans for training films having been approved by the War Department, film scenarios were prepared for scout car platoon, cavalry regiment, horse, light machine gun platoon, and cavalry troop.

The United States Army Olympic Equestrian Team participated in the National Horse Show in New York City with marked success. The Cavalry Rifle Team participated in the National Rifle Matches at Camp Perry, placing fifth in the team match; the Cavalry Pistol Team won second place in its match, and the Cavalry Team won three trophies in the individual matches.

INFANTRY

As a result of continued testing, certain modifications were made in the original triangular form of organization for an Infantry Division. In these changes, effective Oct. 1, war strength was boosted from 12,000 to 14,000; a reconnaissance troop was added; artillery and infantry sections in Division Headquarters and of Artillery Regimental Headquarters were eliminated; decided increases were made in the number of machine guns, rifles (both automatic and semi-automatic), mortars, and antitank weapons. The purposes of these changes were to give divisions increased fire power and flexibility.

Early in January, all of the tank units of the Army except one company at Fort Lewis, Wash. and one at Schofield Barracks, Hawaii, were concentrated at Fort Benning, Ga. for Third Army maneuvers. The purpose of this concentration was to afford four months' intensive field training prior to participation in the maneuvers.

To give an Infantry unit opportunity to have practical training with a wholly mechanized force, the 6th Infantry was sent to Fort Knox where it operated with the 7th Cavalry Brigade (Mechanized) during the month of March.

In May, a firing demonstration was staged at Fort Belvoir for the Senate Military Appropriations Subcommittee to show possibilities of the Garand and Johnson semi-automatic rifles and of the Thompson sub-machine gun.

Early in the year, the Chief of Infantry organized a Test Parachute Platoon from officers and enlisted men of the 29th Infantry. After a period of work and training with a civilian company, this unit was developed into the 501st Parachute Battalion, for the members of which extra pay has been secured.

COAST ARTILLERY

One of the results of Army expansion was a considerable increase in the number of Coast Artillery harbor defense batteries as well as the organization of new anti-aircraft artillery units. New types of anti-aircraft guns and anti-aircraft automatic weapons were standardized for quantity production and fire control methods and equipment applicable to anti-aircraft weapons were improved. While consistent effort was made to develop new types and refine existing types of equipment, these efforts were perforce subordinated to the immediate problem of providing quantities of equipment immediately needed.

CHEMICAL WARFARE SERVICE

Through a system of giving "educational orders" to industrial concerns, recently inaugurated by the War Department, the Chemical Warfare Service, during the past year, greatly extended facilities for the production of the gas masks and other gas defense appliances. In addition, the government manufacturing plant for the production of such equipment was also materially increased. Newly developed low-cost gas masks for training purposes were used extensively in summer training and large scale maneuvers held during the year. Research and development work on chemical warfare continued.

AIR CORPS

The year 1940 was outstandingly significant to the United States Army Air Corps. In 1909 the Wright Brothers delivered the first military airplane to the United States Army Signal Corps. Thirty years after that event the greatest peacetime expansion program of the Air Corps was inaugurated. In 1940 this program was greatly enlarged. Congress had appropriated to Oct. 8, 1940, $2,385,668,500 for the Air Corps for the fiscal year 1941 of which approximately $1,275,000,000 was contract authorization. This contrasts sharply with the $302,000,000 authorized and appropriated for the fiscal year 1940.

A backward glance shows the problems of planning which faced the Air Corps. In 1939 the Corps started an expansion program calling for a total of 5,500 airplanes, approximately 9,500 officers and 95,000 enlisted men. This involved, of course, problems of procurement of airplanes, sites, personnel and the training of new personnel. In order to train the necessary flying personnel, nine established civilian flying schools were selected, with 60 hours of primary training to be given therein. For mechanic and technical training seven other civilian schools were chosen, where 24 weeks of instruction were prescribed at each technical school. The problem of procurement of materiel was enormous. Existing plants all had to be expanded to carry on a normal operation and still meet the demand for 5,500 airplanes.

The problem of 1940 was to meet a still larger expansion. The Air Corps was to be expanded to approximately 16,000 officers and 160,000 enlisted men to operate a combat force of over 12,000 airplanes. Orders had to be placed for more than 18,000 airplanes, new air base sites selected, additional personnel acquired, and additional training facilities provided. This enlarged program was built on the existing one of 1939. Nine civilian flying schools and seven mechanic training schools were added to the original schools selected. The capacity of the Air Corps technical schools was greatly increased and in addition, two new flight training centers were established, one at Maxwell Field, Ala., and the other at Moffett Field, Calif. Under this expanded program, pilots are to be trained at the rate of 12,000 a year and mechanics and technical men at the rate of 53,000 a year. By the fall of 1940, approximately 50 new sites had been chosen with more to be selected. Personnel necessary to bring all units to full strength were in the process of procurement. All of the necessary airplanes were on order and the entire program was well under way, with completion scheduled for 1942.

In addition to the schools listed herein for aviation (see Military Education), the Air Corps secured the following school facilities: Jackson, Miss., affiliated with Alabama Institute of Aeronautics; Albany, Ga., affiliated with Chicago School of Aeronautics; Ricks Field, Fort Worth, Tex., affiliated with the Dallas Aviation and Air College; Oxnard and Ontario, Calif., affiliated with the Cal-Aero Training Corporation; Lakeland, Fla., affiliated with the Lincoln Airplane and Flying School; Sikeston, Mo., affiliated with the Parks Air College; Hemet, Calif., affiliated with the Ryan

School of Aeronautics; and Hatbox Field, Muskogee, Okla., affiliated with the Spartan School of Aeronautics.

ORDNANCE DEPARTMENT

The principal accomplishments of this Department during the year were:

(a) A modification to the Caliber .30 Machine Gun, M2 (aircraft) which increased the cyclic rate of the gun from 1,000-1,100 rounds per minute to about 1,350 rounds per minute. The increasing fire power of airplanes has caused the mounting of the maximum number of the fastest guns possible on combat airplanes. M2 guns with water jacketing capable of cooling the gun during long bursts of fire at 1,350 rounds per minute have been produced.

(b) A method was developed to manufacture demolition bombs by welding formed plates and welding thereto the nose and tail sections. These bombs are as satisfactory for service use as the single piece type. An alternate method was developed to manufacture the single piece body by "spinning in" the ends of a piece of welded or seamless tubing, instead of piercing a billet and shaping by drawing operations. These methods which open new sources of supply were developed with the cooperation of industry.

(c) To meet the requirements of greater mobility, faster operation and longer ranges, anti-aircraft guns of caliber larger than 3″ have been under development. One of these weapons has been adopted. Two types of anti-aircraft guns of caliber less than 3″ (with mounts) are under development to combat low flying attack planes and dive bombers. Several fire control projects designed to improve the accuracy of fire of anti-aircraft guns were completed and the material tested.

(d) Three improved models of panoramic telescopes were standardized for Field Artillery missions, with mechanical features arranged to improve manufacturing and functioning operations.

(e) Improvements in 75-mm. gun carriages increased the efficiency of these guns for their missions.

(f) A very satisfactory 105-mm. howitzer carriage was developed and adopted as standard for rearming the Field Artillery.

(g) Fixed and railway mounts for a new 8″ gun were developed. A model type of carriage for mounting 6″ guns for harbor defense use is under development. Certain types of harbor defense material have been protected against aerial attacks and aerial bombs. Seacoast fire control problems were carefully considered and developments initiated to improve speed and accuracy of fire by the use of mechanical data computers.

(h) Military characteristics and designs of light and medium tanks with heavier armor and more powerful armament were prepared. A heavy tank of greater offensive power and thicker armor was approved as to type.

(i) As a result of proper procurement planning, over a period of many years, placement of nearly the entire Ordnance Program was accomplished in approximately 90 days, during July, August, September and October 1940. The bulk of Ordnance Orders was placed with allocated facilities. The precision and smoothness that marked the distribution of orders was due principally to long distance planning for adequate sources of supply of all major items, and the ability of an organizational structure to translate requirements into contracts. The prompt solution of the problem was due to a thorough understanding of the work involved by both industry and Ordnance Contracting Agencies. The orders placed will provide weapons, ammunition, and equipment for 1,200,000 men and war reserves for an additional 800,000 men. The over-all procurement plan provided for the equipment required for 4,000,000 men. Plans are therefore being accelerated to handle this additional load.

(j) The Ordnance Department was enabled to carry on its program of educating American Industry in the production of non-commercial military items by the passage of the Act approved June 16, 1938 as amended April 3, 1939. During the fiscal year 1940 the greatly increased appropriations of $11,375,200 allowed a considerable increase in the number and scope of contracts awarded. The number of contracts placed totaled 81 for 44 items of munitions. In fiscal year 1941 appropriations, $14,000,000 are available for education on Ordnance Items. To date, seven contracts have been awarded for five items. Work on the balance of the program is progressing satisfactorily.

(k) The procurement program of 1940 called for the expenditure of approximately $177,000,000.00, about three and one-half times the figure for the preceding year. This caused great expansion of activities in the six manufacturing arsenals, with a resultant large increase in employment and the establishment of night shifts in many cases. It also increased employment in the receiving and issuing activities at the various depots, due to the flow of material into storage for later transfer to troops. Commercial procurement was also affected at a much greater rate than heretofore. Delivery of much material under procurement will require from one to two years, and consequently the program is expected to continue into the fiscal year 1942.

QUARTERMASTER CORPS

Construction and contractual activity in this Corps reached a new high for the year because of the Army's tremendous expansion program. Air Corps expansion and augmentation of the Panama Canal garrison created many new tasks involving quartermaster effort. Under the former, the outstanding projects were the establishment of new Air Corps stations and bases at the Southeast Air Depot, Mobile, Ala.; MacDill Field, Fla.; Westover Field, Mass.; Hill Field, Utah; Ladd Field, Alaska; Howard Field, Panama; the expansion of Lowry Field, Col.; Chanute Field, Ill.; Patterson and Wright Fields, O.; Duncan Field, Tex.; McChord Field, Wash.; Hickman Field, Hawaii; Albrook and Wheeler Fields, Panama. Under the Panama Canal garrison expansion program, new stations and hospitals were built at Corundu Military Reservation and at Mt. Hope and a new station established at Fort Kobbe.

Contracts with civilian firms covered the manufacture or purchase of every conceivable item of military equipment, all predicated on the Army expansion plan heretofore described.

The Quartermaster Corps has developed the Army Horse Breeding Plan to the point that the annual foal production exceeds 10,000, coming from breeding stations scattered throughout 41 states and Hawaii.

SURGEON GENERAL'S OFFICE

For the year the health record of the Army was unusually good, the death rate and the admission-to-hospital rate being the lowest on record. The admission rate for venereal disease was likewise the lowest yet recorded.

An interesting development of the World War Hospital Unit Car for railway service was accomplished during the year. Working in conjunction with the Pullman Company and the Quartermaster Corps, plans were perfected to develop a car having messing facilities for 500 patients (as contrasted to World War accommodations for 200); a small operating room, together with office and sleeping space for administrative personnel and cooks.

In January, 1940 the United States Public Health Service was asked to cooperate with the Army in safeguarding health of military personnel by suitable measures of extra-military area sanitation in connection with concentration of troops in the South. Such cooperation was planned to include also the various state organizations, whose efforts were to be coordinated by the Public Health Service. This initial move proved so successful that, on April 11, 1940, the

Surgeon General requested the War Department for authority to make similar arrangements for extra-cantonment sanitation at Regular Army stations and in connection with other military concentrations during the present emergency. This request was approved and on May 4 the Commanding Generals of the four Armies of the nine Corps Areas were informed of the plan and directed to cooperate in every way possible.

In 1939, the Secretary of War approved the organization of military hospitals by affiliation with civil institutions throughout the country. On June 26, 1940 the Surgeon General requested and received authority to extend this plan. This last move raised the number of affiliated units of the Medical Department for the Theater of Operations to 68 general, 30 evacuation, and 23 surgical hospitals.

In order to consolidate the administration of the research activities of the Medical Department, the old Research Coordinating Board was discontinued and a new Board constituted in January, 1940. During the year the more important research activities have included (1) development at Edgewood Arsenal of protective and therapeutic measures against chemical agents; (2) studies in typhoid, paratyphoid, pneumonia and virus immunization, and the development of roentgenological equipment for the military service at the Army Professional Schools in Washington, D.C.; (3) investigation of equine influenza and periodic ophthalmia at Front Royal, Va.; and, (4) studies in malaria and other tropical conditions in the Canal Zone.

THE FINANCE DEPARTMENT

This branch pays the War Department's personnel and bills, makes collections due, and audits property accounts. The Chief of Finance, as War Department Budget Officer, is charged with preparing and submitting to the Bureau of the Budget all estimates of funds for the several branches and services required for inclusion in the annual War Department appropriations made by Congress. The total number of vouchers paid by the Finance Department in the past fiscal year was 2,672,907, representing an aggregate disbursement of $993,055,784.69, which amount includes expenditures in connection with the Civilian Conservation Corps. There were 2,674,494 commercial invoices handled. Most of these indicated a discount period through which means $2,318,624.73 was earned. Since July 1, 1919, the Finance Department has thus saved the Government $13,731,738.31. All items of property purchased for the military establishment are audited by the Finance Department. This includes all supplies and equipment procured and accounted for by the Regular Army, R. O. T. C., Organized Reserves, C. M. T. C., and the National Guard as well as Ordnance equipment loaned to civilian rifle clubs. In addition, the Finance Department is charged with the audit of all accounts carrying the property belonging to the Civilian Conservation Corps under the custody of the War Department. In the hands of Army agencies at present, excluding the value of grounds and buildings, there is well over $2,000,000,000 worth of property. The accountability of this property is divided among 3,800 accounts which are audited at least once annually.

Since 1873, soldiers' savings have been authorized to be deposited with the Army disbursing officers in sums not less than $5 to draw interest at 4 per cent per annum. On June 30, 1940, there were approximately 14,664 active soldier deposits and the amount deposited for the year totaled $1,540,243.39; the amount of interest paid by the Government on these deposits was $60,826.81. From June 30, 1873 to June 30, 1940 the sum of $81,869,640.63 has been deposited through this Army channel, earning $4,123,939.90 in interest. The largest single soldier's deposit of record is $29,506.50.

The Act of June 28, 1937 authorized enrollees of the Civilian Conservation Corps to make deposits of pay in amounts specified by the Director with the Chief of Finance, to be repaid in case of an emergency or upon completion of or release from enrollment, and to receive the balance of their pay in cash monthly. Deposits made by enrollees of the Civilian Conservation Corps, to and including June 30, 1940, amounted to $10,512,609.90. On that date there were 16,565 active deposit accounts. The Finance Department has the duty of paying the Civilian Conservation Corps, and the average number of members paid monthly since April 1933 was 315,892; the average number of allottees paid monthly since April 1933 was 293,162; the total amount paid allottees during the period April 1933 to June 30, 1940 was $678,149,072.21. During this period 41,041,527 Civilian Conservation Corps checks were drawn. Total disbursements pertaining to the Civilian Conservation Corps for the fiscal year 1940 amounted to $274,521,015.34.

INSPECTOR GENERAL'S DEPARTMENT

The past year developed unusual and varied problems for this Department by reason of the considerable expansion of the Army, the induction of the National Guard into the Federal Service and the initiation of the Selective Service Law. Many definite and practical recommendations in connection with the administrative problems thus created were prepared and issued by the Inspector General's office. In the course of its routine duties, this Department made 5,354 inspections and investigations divided as follows: 412 inspections of posts, depots, arsenals and transports; 920 inspections of money accounts handled by disbursing officers; 3,879 inspections of National Guard units; and 143 investigations of varied irregularities and complaints.

JUDGE ADVOCATE GENERAL'S DEPARTMENT

The functions of this Department are to operate the system of military justice, to act as legal adviser to the War Department and to the entire military establishment. In the field the Judge Advocate General is represented by two or more officers of his Department at each corps area and department headquarters and one or more at each division headquarters. When available, officers have also been stationed at Forts Leavenworth, Sill, Benning, and Riley. During the past year 120 Reserve judge advocates were given active duty training and two from this reservoir were commissioned in the Regular Army.

This Department, in the past year, tried 1,851 persons by courts-martial, of which number 1,776 were convicted and 75 acquitted. Specifications tried represented 104 different offenses, desertion, absence without leave, and larceny being in the majority.

Contracts Section, handling questions relative to making or operation of contracts in which the War Department is interested, prepared 521 formal opinions. Military Reservations Section prepared 498 formal opinions. Claims and Litigation Section (except patent matters) handed down 974 formal opinions. The Military Affairs Section rendered 835 formal opinions in cases affecting Army organization, administration, and personnel. The War Plans and Intelligence Section, a new unit, handling matters pertaining to war plans and military government, rendered six formal opinions. The Patents Section collaborated with the Department of Justice in defense of 32 patent suits involving aggregate claims amounting to $102,000,000 and prosecuted 75 patent applications in the United States Patent Office.

The Department shares in the credit for the reduction of the court-martial rate, including general, special, and summary courts to the lowest point since the first World War. This result was obtained without lowering the standard of discipline. The resultant, per thousand of enlisted men, was:

	1931	1940
General Court	28	9
Special Court	46	21
Summary Court	105	48

CORPS OF CHAPLAINS

Regular Army Chaplains conducted 25,400 services with a total attendance of 1,753,020; they also baptized 1,529; conducted 2,013 funerals; and performed 756 marriages. During the same time, civilian ministers conducted 4,123 services at Army posts with a total attendance of 283,559.

ADJUTANT GENERAL'S DEPARTMENT

The World War Division received 724,469 additional documents for file, covering records of discontinued posts and commands, reports of physical examination, and medical cards. There are now on hand for demobilized, discontinued, and inactive organizations approximately 99,202,780 documents, and in these 440,368 searches were made last year.

The 5,821,967 fingerprint records previously reported herein as constituting the Adjutant General's file accumulated from 1906 to 1939 are retained in his office. However, fingerprint records made since July 1, 1939 are recorded on Department of Justice Fingerprint Cards and placed on file in the Federal Bureau of Investigation. During the year the Adjutant General's Office was instrumental in adding 112,202 new prints to the F. B. I. files. Fingerprints of 1,654 deceased persons were examined of which number 594 were identified as having had Army service. Verifications of identity were also made in 42,784 applications for certificates in lieu of lost or destroyed discharge certificates.

Correspondence during the year aggregated 3,587,114 pieces of mail; the largest number received for a single month was 358,902, and the single day maximum was 23,166.

Library books were circulated through 147 permanent and 149 traveling libraries. Total circulation approximated 1,444,155 books. Expenditures were $11,200 for books, $5,100 salaries for librarians, and $563 for transportation of books.

During the year, 25,418 programs were shown at War Department theaters with a total attendance of 11,862,234. New theaters were built at three posts; 16 theaters were equipped with modern sound-reproducing apparatus, bringing the total number so equipped to 21.

As one of the agencies designed to strengthen the will and the ability of the soldier to perform his military duties, a new unit known as the Morale Division was set up in the Adjutant General's Office. This Division will use and coordinate every facility which bears on these objectives—motion pictures, amateur dramatics, athletics, library service, music both vocal and instrumental, art and industrial exhibits, decorations, and newspaper and magazine publications.

CIVILIAN CONSERVATION CORPS

During the year 293,652 men were enrolled, making a total enrollment of 3,311,836 since the Corps was established in April, 1933. Strength on June 30, 1940 was 200,079, divided among the 1,500 camps distributed throughout the United States. The sum of $98,350 was available for welfare purposes and $3,837,369 for educational activities. By Dec. 31, 1939 all Reserve officers on active duty with the C. C. C. were relieved from such duty and placed on a civilian status. On June 30, 1940 there were on duty with the Corps, 99 commissioned officers and one warrant officer of the Regular Army and 4,735 members of the Reserve. The Reservists included 4,607 Army, 108 Navy, and 20 Marine officers.

PANAMA CANAL

The Panama Canal is an independent establishment in the government service directly under the President, but as a matter of executive arrangement the Secretary of War represents the President in the administration of Canal affairs. The present governor of the Canal Zone is Brigadier General Glen E. Edgerton.

The area of the Canal Zone including land and water, but not including the water area within the three-mile limit from the Atlantic and Pacific ends, is 552.8 square miles. The area of Gatun Lake, when its surface is at its normal elevation of 85 feet above sea level, is 163.4 square miles. The water area of the Zone, including Madden Lake, which was formed by the construction of Madden Dam in 1935, is 190.94 square miles. The Canal is 50.72 statute miles in length from deep water in the Caribbean Sea to deep water in the Pacific Ocean, while the shore-to-shore length is approximately 40½ miles. The channel ranges in width from 300 to 1,000 feet and the minimum depth is 41 feet. Average time of passage through the Canal is from seven to eight hours; record passage was made in four hours, ten minutes. Maximum traffic capacity is estimated at 48 ships of usual size per day, or about 17,000 a year.

The civil population of the Canal Zone according to the census of April, 1940 was 51,827, inclusive of military and naval garrisons. The total civilian force employed was 5,258 on the "Gold Roll" and 18,891 on the "Silver Roll." The gold roll comprises the supervisory, technical, higher clerical, and highly skilled mechanical employees; these employees are, with a few exceptions, American citizens. The silver roll is formed principally of tropical natives, with a considerable number of Panamanians.

The gross capital investment at the beginning of the fiscal year 1940 was $543,150,444.95 and the net capital investment, after deducting accrued depreciation was $508,107,922.04. The net revenues of the Canal during the fiscal year 1940 amounted to $11,253,773.49 on Canal operations and $1,033,886.06 on business operations, a total of $12,287,659.55 which is 2.42 per cent of the net capital investment at the beginning of the year.

During the fiscal year ended June 30, 1940, a total of 5,370 ocean-going vessels transited the Canal. This included tolls-paying vessels of 300 net tons or over, Panama Canal measurement. Of these, 2,763 transited from the Atlantic to the Pacific, carrying 9,819,600 tons of cargo, and 2,607 transited from the Pacific to the Atlantic, carrying 17,479,416 tons of cargo. The preponderance of cargo tonnage moving from the Pacific to the Atlantic was due to the large movements of bulky raw materials, such as mineral oils from California and Peru, lumber and wheat from the west coasts of the United States and Canada, iron ore and nitrate from Chile, and sugar from the Philippine Islands. Of the 5,370 ocean-going vessels, 1,997 were of United States registry; 1,073 British; 557 Norwegian; 340 Netherlands; 272 Japanese; 243 Panamanian; 175 Greek; 174 Danish; 110 Swedish; 93 French; 81 Honduran; 55 German; 46 Italian; 38 Chilean; 27 Yugoslav; and the remaining 89 divided among 14 other nationalities.

On June 24, 1940, Public Act No. 653, Seventy-sixth Congress, made available $15,000,000 to begin construction work on the Third Locks Project which was accordingly started on July 1, 1940. This project involves the construction of a complete new set of locks at Gatun, Pedro Miguel, and Miraflores, with by-pass channels paralleling existing facilities, relocation of the Panama Railroad line and other existing facilities, and the construction of bridges over the existing locks at Miraflores and Gatun, together with vehicular tunnels under projected new locks.

The following courses were presented in the Canal Zone Junior College during the school year 1939-40, and the number of graduates in each course: Science-Engineering, 13; Commercial, 10; Liberal Arts, 8. These are two-year courses for which full credit is given by colleges in the United States towards a degree. There were 216 graduates from the two high schools in 1939-40.

THE NATIONAL GUARD

On Jan. 30, 1940, Major General John F. Williams succeeded Major General Albert H. Blanding as Chief of the National Guard Bureau.

The past year witnessed the largest augmentation in National Guard personnel ever known in peacetime.

The normal fourth increment of 5,000, designed to bring the National Guard to a strength figure of 210,000 was used to complete units of high priority on the Army's training program, to organize two regiments of antiaircraft coast artillery, one regiment of field artillery (155-mm. howitzer) and several air corps observation squadrons. An extraordinary increase, provided by Presidential Executive Order and totaling 43,217 officers and enlisted men, was used to augment the strength of previously existing units.

Early in 1940, National Guard units participated in Regular Army maneuvers in Southern areas and again in August in maneuvers engaged in by all four Armies of the Regular Army.

Twenty-four enlisted men of the National Guard entered the United States Military Academy during 1940 and many officers of the Guard were students of special courses in Regular Army schools.

MILITARY EDUCATION*

During the year, the school program of the Army suffered interruption because of warlike conditions abroad. Instruction at three of the larger schools was ordered to be suspended with the completion of the 1939-40 school year. Thus affected were the Army War College and the Army Industrial College, in Washington, D. C., and the Command and General Staff School at Fort Leavenworth, Kan. At the time this change was put into effect, plans had been evolved for holding two intensive courses per school year at Leavenworth and orders had actually been issued detailing officer students to the first of these courses. In August, the original order of cessation was amended as regards the Army Industrial College so that a special course was begun there on August 12th to extend to December, 1940.

U. S. Military Academy, West Point, N. Y.—From the June, 1940 class of cadets, 448 (including two Filipinos) were graduated. A total of 1,709 candidates were designated to take the entrance examinations; of this number, 572 satisfactorily passed all requirements and, of this latter number, one declined appointment, while for 170 no vacancies existed.

Cavalry School, Fort Riley, Kan.—Officers: Regular, 29; Advanced Equitation, 14; Refresher, 1; National Guard and Reserve, 59. Enlisted Men: Noncommissioned Officers, 33; Noncommissioned Officers Advanced Equitation, 20; National Guard Noncommissioned Officers, 10; Horseshoers, 54; Saddlers, 38. After the close of the regular school and early in the summer of 1940, the following additional courses were established: Officers' Refresher for newly-commissioned officers, composed of 40 students; Basic Horse and Mechanized, composed of 80 captains and lieutenants of the Regular Army, National Guard and Officers' Reserve Corps; Advanced and Basic Motors, 15 students; Refresher, composed of 25 field officers of the Regular Army and National Guard.

Field Artillery School, Fort Sill, Okla.—Officers: Regular, 61; Advanced Horsemanship, 6; Advanced Motors, 8; Refresher, 8; National Guard and Reserve, 121. Enlisted Men: Motor Mechanics, 93; Horseshoers, 23; Saddlers, 11; Communications, 88; Battery Mechanics, 32.

Coast Artillery School, Fort Monroe, Va.—Officers: Regular, 50 (including 3 officers from the United States Marine Corps, 2 from the Chilean Navy and 1 from the Philippine Army); Special for National Guard and Reserve, 107 (89 National Guard, 18 Reserve); Refresher, 374 (71 Regulars, 303 Reserves); Central Stereoscopic Height Finder Course, 3. Enlisted Men: Electrical, 141; Master Gunners, 7; Radio, 36; Electrical Refreshers, 29; Special Clerical, 37; Special Central Stereoscopic Observers, 55; Special Radio, 4.

Engineer School, Fort Belvoir,

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* In each case, the name of the course presented at the various schools will be followed by a figure representing the number of graduates from such course.

Va.—Officers: Regular, 41 (including 1 from United States Marine Corps and 2 from Philippine Army); National Guard and Reserve, 46. Enlisted Men: Surveying, Drafting and Aerial Photographic Mapping, 25 (including 1, each, from Marine Corps, Field Artillery, Ordnance, and Infantry); Map Reproduction and Photography, 16 (including 1 from Marine Corps); Electrical Motors and Water Purification, 14 (including 1 from Marine Corps); National Guard Noncommissioned Officers and Sergeant Instructors, 11.

Signal School, Fort Monmouth, N. J.—Officers: Regular, 55; National Guard and Reserve, 52; Refresher for Sergeant Instructors, 6; National Guard Noncommissioned Officers, 2; Radio Communications, 635; Wire Communications, 482; Teletype, 41.

Finance School, Holabird Quartermaster Depot, Baltimore, Md.—This school is divided into two departments, (a) Department of Finance and Accounting, and (b) Department of Property Accounting and Property Auditing. There were 110 graduates from the resident course for the year making a total since 1920 of 1174. Home study courses requiring 62 hours of study over a period of five months graduated 179 students; special for officers newly detailed to finance work, 28; special for National Guard and Reserve Officers, 12. A special course in property accounting and auditing is conducted by mail.

Infantry School, Fort Benning, Ga.—Officers: Regular, 114; Tank, 35; Advanced Communications, 9; National Guard and Reserve, 377; National Guard and Reserve, Tank, 10. Enlisted Men: Communications, 134; Motor Mechanics, 118; Horseshoers, 10; Tank Mechanics, 70; Sergeant Instructors, 33.

Army Medical School, Washington, D. C.—Officers: Basic, 55. Enlisted Men: X-Ray Technicians, 26; Laboratory Technicians, 20.

Army Dental School, Washington, D. C.—Enlisted Men: Dental Technicians, 12.

Army Veterinary School, Washington, D. C.—Officers: Basic, 5. Enlisted Men: Veterinary Technicians, 10.

Medical Field Service School, Carlisle Barracks, Penn.—Officers: Basic, 111; Advanced, 12. Enlisted Men: Noncommissioned Officers, 61.

School of Aviation Medicine, Randolph Field, Tex.—Officers: Basic, 17. Enlisted Men: Flight Surgeon's Assistant, 33.

Ordnance School, Massachusetts Institute of Technology, Cambridge, Mass., and Watertown Arsenal, Mass.—Course I, leading to the degree of Master of Science and covering theoretical training in sciences as applied to Ordnance Engineering, 21 graduates.

Ordnance School, Aberdeen Proving Ground, Md.—Course II, graduated 19 officers from the Ordnance Department and 2 from the Philippine Army. There were two Aviation Ordnance courses given, of 3 months duration each, from which a total of 27 Ordnance officers were graduated. From the Ordnance Special Service Course, 13 officers enrolled from the National Guard, the Marine Corps, and the Ordnance Reserve, were graduated.

Ordnance Field Service School, Raritan Arsenal, Metuchen, N. J.—Noncommissioned Officers, 26; Enlisted Specialists, 129 (Marine Corps providing 10). In June, 1940, the two Ordnance Schools were combined into one school to be known as The Ordnance School with headquarters at Aberdeen Proving Ground, Maryland.

Chemical Warfare School, Edgewood Arsenal, Md.—Line and Staff Officers, 25; Field Officers, 41; Navy, 17; Basic, 62; Noncommissioned Officers, 54.

Quartermaster School, Philadelphia, Penn.—Officers: Regular, 42; National Guard and Reserve, 48 (29 Reserve; 19 National Guard). Warrant Officers and Enlisted Men, 60.

Quartermaster Motor Transport School, Camp Holabird, Baltimore, Md.—Officers: Regular Army, 6; Chinese Army, 3; National Guard, 41; Reserve, 43. Enlisted Men, 141.

Quartermaster Schools for Bakers and Cooks.—Approximately 100 officers and 2500 enlisted men completed courses of instruction at these schools.

Air Corps Technical School, Chanute Field, Rantoul, Ill.—Airplane Mechanics, 1289; Aircraft Machinists, 62; Aircraft Welders, 111; Aircraft Metal Workers, 191; Parachute Riggers, 154; Carburetor Specialists, 122; Electrical Specialists, 229; Instrument Specialists, 253; Propellor Specialists, 167; Link Trainer Instructors, 39; Teletype Maintenance, 12.

Air Corps Technical School, Lowry Field, Denver, Col.—Aircraft Armorers, 496; Photography, 237; Clerks (Supply, Engineering and Operations), 535; Bomb Sight Maintenance, 2.

Air Corps Technical School, Scott Field, Belleville, Ill.—Radio Operators and Mechanics, 792.

Air Corps Primary Flying School, Randolph Field, Tex.—Flight Training, 1,000.

In order to train the necessary flying personnel, nine established civilian flying schools were selected: Alabama Institute of Aeronautics, Tuscaloosa, Ala.; Allan Hancock College of Aeronautics, Santa Maria, Calif.; Chicago School of Aeronautics, Glenview, Ill. (Curtis-Reynolds Airport); Dallas Aviation and Air College, Love Field, Dallas, Tex.; Cal-Aero Training Corporation, Grand Central Air Terminal, Glendale, Calif.; Lincoln Airplane and Flying School, University Place, Lincoln, Neb.; Parks Air College, E. St. Louis, Ill.; Ryan School of Aeronautics, Lindbergh Field, San Diego, Calif.; Spartan School of Aeronautics, Municipal Airport, Tulsa, Okla.

For mechanic and technical training, seven other civilian schools were chosen: Curtis-Wright Technical Institute of Aeronautics, Glendale, Calif.; Casey Jones School of Aeronautics, Newark, N. J.; Roosevelt Field, Inc., Aviation School Division, Mineola, Long Island, N. Y.; Aeronautic University, Chicago, Ill.; New England Aircraft School, Boston, Mass.; Spartan School of Aeronautics, Municipal Airport, Tulsa, Okla.; and Parks Air College, Inc., E. St. Louis, Ill.

Command and General Staff School, Fort Leavenworth, Kan.—From the regular course there were graduated 225 Regular Army Officers, 2 Marine Corps Officers, and 2 Philippine Army Officers; from special courses, 49 National Guard and 52 Reserve Corps Officers.

The Army Industrial College, Washington, D. C.—This school graduated the following numbers: Regular Army, 49; Navy, 2; Marine Corps, 2; for a total of 53. To date, 804 officers of the various service components have completed full courses at this school.

The Army War College, Washington, D. C.—This school graduated the following numbers: Regular Army, 98; Marine Corps, 2; for a total of 100. To date, 2,043 officers of the various service components have completed full courses at this school.

RESERVE OFFICERS' TRAINING CORPS

	Units	Enrollment
Senior	226	103,818
Junior	139	66,134

Interest in this Corps increased materially during the year, many applications being received for the establishment of new units. Current appropriations provided funds for 1,435 additional advanced course students, thereby increasing such authorized enrollment to 18,000. At the close of the school year 1939-40, a total of 36 preparatory schools including high schools, were receiving Government aid and these schools had a total military training enrollment of 10,268.

CITIZENS' MILITARY TRAINING CAMPS

There were 62,587 applicants; of these, 40,380 were ordered to camp; 38,281 reported; these provided an enrollment of 37,152; from this enrollment, 36,151 completed the training. There were 2,318 graduates from the blue course.

CIVILIAN EDUCATIONAL INSTITUTIONS

A total of 146 Commissioned Officers took courses of instruction at civilian institutions in the United States. They were divided among the several arms of service as follows: Infantry, 9; Cavalry, 2; Field Artillery, 2; Coast Artillery, 2; Air Corps, 14; Engineers, 46; Signal Corps, 6; Judge Advocate General's Department, 14; Quartermaster Corps, 12; Finance Department, 2; Medical Department, 27; Ordnance Department, 3; Chemical Warfare Service, 7. Included in the total were 38 taking short courses varying in duration from two weeks to six months.

FOREIGN SCHOOLS

A total of 22 Commissioned Officers of the Regular Army attended foreign schools as students: China and Japan, 14; France, 6; Mexico, 2.

FOREIGN OFFICERS

During the year, 59 officers of the Army of the Philippines and of foreign armies attended our service schools or were attached to our units as follows: Air Corps Schools, 27; Coast Artillery School, 3; Cavalry School, 2; Medical Schools, 3; Field Artillery School, 3; Infantry School, 9; Engineer School, 2; Signal Corps School, 1; Quartermaster Schools, 2; Command and General Staff School, 2; Ordnance School, 2; attached to units, 3. In addition to 27 officers from the Philippine Commonwealth, this group represented the following countries: Argentina, 7; Bolivia, 2; Chile, 9; China, 6; Colombia, 4; Haiti, 3; Mexico, 1.

During the year, General Marshall as Chief of Staff of our Army entertained, as guests, Chiefs of Staff and army officers from South America. The first group, on tour here from Oct. 1 to 14, included representatives from Bolivia, Argentina, Peru, Uruguay, Panama, Dominican Republic, Honduras, Costa Rica, Guatemala, and Colombia. The second group, on tour from Oct. 16 to 30, was composed of officers from Ecuador, Chile, Haiti, El Salvador, Nicaragua, Paraguay, Venezuela, Mexico, Brazil, and Cuba.

ARMY EXTENSION COURSES

There were 368 courses made available, approximating 4,895,000 lessons and solutions. There were 109.344 students enrolled, an increase of 3,696 over the previous year. Included in this total were 800 Regular Army Officers; 63,870 Reserve Officers; 13,542 National Guard Officers; 996 Regular Army Enlisted Men; 20,249 National Guard Enlisted Men; 1,056 Enlisted Reservists; 3,996 C. M. T. C. trainees, and 4,835 civilians. A total of 66.675 students completed 168,887 subcourses, requiring 2,684,708 hours of instruction at an average cost of approximately $1.52 per student.

Yangtze Service Medal.—During the past fiscal year the War Department approved nine applications for the issuance of the Yangtze service medal by the Major General Commandant of the United States Marine Corps to officers, Army nurses, and enlisted men of the 31st United States Infantry and attached Army personnel who served with the 4th United States Marines at Shanghai, China, during the period Feb. 5 to July 1, 1932. This makes a grand total to July 1, 1940 of 683 such applications approved.

Award to Gen. Bisbee.—Two decorations of more than ordinary interest were conferred during the year. On the occasion of his hundredth birthday, Brigadier General William H. Bisbee, Retired, was awarded the Purple Heart decoration for his outstanding Civil War Service. At the time of this award, General Bisbee was the oldest officer on the rolls of the Army.

D. S. C. for Gen. Pershing.—Later in the year and upon the occasion of his eightieth birthday, General John J. Pershing was awarded the Distinguished Service Cross for heroic service in action against hostile fanatical Moros at Mount Bagsak, Jolo, Philippine Islands, on June 15, 1913.

MEDALS AND DECORATIONS

Decoration	Awards Previously Made		Awards During Current Fiscal Year		Grand Total to July 1, 1940
	Medal	O.L.C.	Medal	O.L.C.	
Congressional medal of honor	1,825	0	1	0	1,826
Distinguished service cross	6,370	126	3	0	6,499
Distinguished service medal	2,122	6	0	1	2,129
Silver star	10,490	1,712	532	49	12,783
Purple heart	63,901	5,750	3,899	347	73,897
Soldier's medal	281	0	25	0	306
Distinguished flying cross	88	5	4	0	97
French fourragere	2,643	0	48	0	2,691

Service Medal	During Fiscal Year Ended June 30, 1940	Grand Total to July 1, 1940
Civil War campaign medal	275	3,040
Indian campaign medal	11	2,306
Spanish campaign medal	126	11,160
Philippines congressional medal	48	7,012
Spanish war service medal	275	28,514
Philippine campaign medal	216	39,561
Army of Cuban occupation medal	135	8,078
Puerto Rican occupation medal	34	1,850
China campaign medal	8	1,918
Army of Cuban pacification medal	9	6,464
Mexican service medal	37	17,063
Mexican border service medal	227	41,433
Victory medal	4,314	1,318,870

VETERANS AFFAIRS

By Frank T. Hines

Administrator, Veterans Administration

ORGANIZATION

As of June 30, 1940, the organization of the Veterans' Administration consisted of the following officers; Frank T. Hines, Administrator of Veterans' Affairs; Adelbert D. Hiller, Executive Assistant to the Administrator; Harold W. Breining, Assistant Administrator in charge of finance and insurance; Omer W. Clark, Assistant Administrator in charge of pensions and compensations; George E. Ijams, Assistant Administrator in charge of medical and domiciliary care and treatment, construction and supplies; Edward E. Odom, Solicitor in charge of legal activities; and Robert L. Jarnigan, Chairman of the Board of Veterans' Appeals.

ADJUSTED COMPENSATION

The World War Adjusted Compensation Act, approved May 19, 1924, authorized the payment of adjusted compensation, otherwise known as the Bonus, to veterans of the World War. As of June 30, 1940 benefits approximating $3,766,684,679 in value had been extended to 4,121,069 veterans or the dependents of deceased veterans. In 3,792,432 of these cases, the veterans received adjusted service certificates equivalent to 20-year endowment policies, aggregating $3,709,-

945,334 in value. Cash payments had been made to veterans or their beneficiaries in the sum of $54,667,709. Awards had been made on 241,804 adjusted service certificates which had matured by the subsequent death of the veteran. The face value of these matured certificates approximated $238,364,117.

The Adjusted Compensation Payment Act, approved Jan. 27, 1936, provided for the immediate payment of World War adjusted service certificates. As of June 30, 1940, 3,509,808 applications had been certified for payment under this act, and the maturity value of these certificates was $3,434,940,134.

U. S. GOVERNMENT LIFE (CONVERTED) INSURANCE

The United States Government life insurance fund is a trust fund administered by the Government as trustee for the sole benefit of the policyholders. The Government derives no profit whatever from the administration of this fund as it may be used only for the payment of claims under United States Government life insurance contracts and as dividends to the policyholders themselves. All premiums paid by the policyholders, all interest received from policy loans, investments, etc. are covered into this fund in the United States Treasury.

As of June 30, 1940 there were in force 608,923 Government life insurance policies aggregating $2,564,984,223 of insurance. During the fiscal year ended June 30, 1940 there were issued 52,713 new policies aggregating $144,315,328. The actual disbursements made from this fund during the fiscal year 1940 was $69,812,755.14.

MILITARY AND NAVAL INSURANCE

Military and Naval insurance covers contracts held by veterans of the World War for a form of insurance formerly designated as War Risk insurance. This insurance is divided into two general classes, Term and Automatic.

Term insurance was granted to all veterans of the World War who made application for this form of benefit within 120 days after induction into service. The amount of term insurance was limited to $10,000 for each veteran. Monthly payments on term insurance policies are based on $5.75 per $1,000 of insurance in force at such time an award for disability or death is made. As of June 30, 1940 monthly payments were being made to 10,944 permanently and totally disabled veterans and to the beneficiaries of 12,258 deceased veterans. An analysis of the disabilities for which term insurance was being paid shows 51.72 per cent for neuropsychiatric diseases, 22.57 per cent for tuberculosis, and 25.71 per cent for general medical and surgical conditions.

Automatic insurance was granted to those veterans of the World War who were disabled or who died within 120 days after being inducted into service and before application for term insurance was made. The amount of automatic insurance was limited to $5,000. As of June 30, 1940 monthly payments on automatic insurance policies were being made to 287 veterans and the beneficiaries of 81 deceased veterans. These payments are fixed by law at $25 per month.

The total disbursements for Military and Naval Insurance during the fiscal year 1940 was $19,601,576.82.

GUARDIANSHIP

The Veterans Administration maintains a close supervision of all guardianship activities for incompetent veterans and minor beneficiaries. An effort has been made to utilize so far as possible the services of relatives as guardians of the person and the services of banks and trust companies as guardians of the estate of wards. As of June 30, 1940 the total guardianship load was 83,776, of which 43,492 were incompetent and 40,284 minor wards. The total amount of estates was valued at approximately $158,514,599.52, most of which was legally invested or deposited in banks protected by Federal Deposit Insurance.

HONOR ROLL—YELLOW FEVER EXPERIMENTS

Public No. 868, 70th Congress, approved Feb. 28, 1929, recognized the high public service rendered by Major Walter Reed and those associated with him in the discovery of the cause and means of transmission of yellow fever. This act, in addition to establishing a roll of honor, granting medals, etc., authorized a monthly payment of $125 to each of 17 designated persons during the remainder of their lives. As of June 30, 1940, 10 persons were receiving this benefit. The disbursements for this type of benefit during the fiscal year totaled $15,000.

REVOLUTIONARY WAR PENSIONS

Veterans.—The last veteran pensioner of the Revolutionary War was Daniel F. Bakeman who died at Freedom, N. Y., April 5, 1869 at the age of 109 years.

Deceased Veterans.—The last widow of a veteran of this war to receive pension was Esther S. Damon of Plymouth County, Vermont. Mrs. Damon died Nov. 11, 1906 at the age of 92 years.

WAR OF 1812

Veterans.—Hiram Cronk, the last veteran pensioner of the War of 1812, died May 13, 1905 at Ava, N. Y. at the age of 105 years.

Deceased Veterans.—The last widow of a veteran of this war to receive pension was Caroline King of Cheektowaga, N. Y. Mrs. King died June 28, 1938 at the age of 89 years. As of June 30, 1940, the sole remaining pensioner of the War of 1812 was Esther Ann Hill Morgan of Independence, Ore., a dependent daughter of John Hill, deceased, private in Clark's and McCumber's Companies, New York. Mrs. Morgan was born March 9, 1857 and received $20 a month by a special act of Congress.

MEXICAN WAR

Veterans.—The War with Mexico ended May 30, 1848. The last veteran pensioner of this war was Owen Thomas Edgar, an apprentice on board the U.S.S. *Potomac, Experiment, Pennsylvania,* and *Alleghany,* U. S. Navy. Mr. Edgar died Sept. 3, 1929 at Washington, D. C., age 98 years.

Deceased Veterans.—On June 30, 1940 pensions were being paid to 130 widows of Mexican War veterans, representing a decrease of 38 in the number of dependents on the roll as of June 30, 1939. The disbursements made during the fiscal year 1940 totaled $84,613.33.

INDIAN WARS

Veterans.—On June 30, 1940 pensions were being paid to 2,216 veterans on account of Indian War service. This number represents a decrease of 309 veterans on the roll during the fiscal period. The average age of the 2,216 veterans was 80 years. Disbursements made for veteran pensioners of the Indian Wars during the fiscal year 1940 totaled $1,694,482.65.

Deceased Veterans.—As of June 30, 1940 pensions were being paid to the dependents of 4,055 deceased veterans of Indian Wars. The number of dependents totaled 4,095, classified as follows: 4,015 widows, 69 children, and 11 others. The disbursements for dependents of Indian War veterans during the fiscal year 1940 totaled $1,483,472.19.

CIVIL WAR

Veterans.—Out of a total of 2,213,365 who served in the Union forces in the Civil War which terminated 75 years ago, pensions were being paid to 2,381 veterans on June 30, 1940. The average age of this group of veterans was 95 years. During the fiscal year 1940, the number on the pension roll for Civil War veterans decreased 1,135. The disbursements during this fiscal period for Civil War veterans totaled $3,158,998.10.

Deceased Veterans.—On June 30, 1940 pensions were being paid to the dependents of 50,141 deceased veterans of the Civil War as compared with 57,915 on June 30, 1939. These dependents totaled 50,323 classified as follows: 48,006 widows and 2,317 children. Of the 50,141 death cases there were 6,425 cases in which the monthly payment was $30, 37,938 cases in which the beneficiary received $40 per month as provided by law for widows of the attained age of 70 years, 534 cases in which $50 per month was being paid to widows who were wives of veterans during their Civil War service, 4,335 cases in which the dependents received pensions by special acts of Congress, and 909 cases in which the dependents were paid under general laws and service laws at miscellaneous rates because of the death of the veteran from causes due to military service. The disbursements for dependents of deceased veterans of the Civil War during the fiscal year 1940 totaled $24,631,254.83.

SPANISH AMERICAN WAR

Veterans.—On June 30, 1940, 159,230 veterans of the Spanish American War were receiving pensions. Of this number 128,353 were receiving pensions for disabilities of nonservice origin, 29,206 for age, 1,584 for service connected disabilities, and 87 were special act cases. A study of the age of these pensioners shows that 80 per cent were between the ages of 60 and 70 as of the above date. The number of veterans on the roll decreased 6,480 during the fiscal year 1940. The disbursements for pensions to Spanish American War veterans during the fiscal period amounted to $106,203,201.30.

Deceased Veterans.—As of June 30, 1940 pensions were being paid to the dependents of 57,720 deceased veterans of the Spanish American War as compared with 55,882 as of June 30, 1939. Of the 57,720 death cases, 1,325 were service connected, 56,337 nonservice connected, and 58 special act cases. The number of dependents involved totaled 63,257 classified as follows: 55,332 widows, 7,584 children, and 341 parents. During the fiscal year 1940, $21,224,174.53 was paid in pensions to dependents of Spanish American War veterans.

REGULAR ESTABLISHMENT PENSIONERS

Veterans.—As of June 30, 1940 the number of veterans receiving pensions as a result of disabilities incurred in service in time of peace totaled 36,051 as compared with 34,185 on June 30, 1939. The disbursements for this class of pensioners during the fiscal year 1940 totaled $12,728,872.47.

Deceased Veterans.—On June 30, 1940 pensions were being paid to the dependents of 10,126 deceased veterans where death of the veteran was determined to be the result of disease or injury originating in line of duty in the military or naval service in time of peace. There was an increase of 711 death cases during the fiscal year 1940. The number of dependents receiving pension as of June 30, 1940 totaled 15,983, consisting of 5,520 widows, 5,697 children, and 4,766 parents. The disbursements for pensions to dependents of deceased veterans of the Regular Establishment during the fiscal year 1940 totaled $3,082,893.78.

WORLD WAR PENSIONS

Veterans, Service Connected.—During the fiscal year 1940, the number of veterans receiving compensation for disabilities directly or presumptively connected with service during the World War increased from 342,072 to 348,164. An analysis of the major disabilities of the 348,164 veterans on the pension roll June 30, 1940 shows that 19.74 per cent were neuropsychiatric diseases, 15.76 per cent were tubercular ailments, and 64.50 per cent were general medical and surgical conditions. Of these veterans, 2,772 resided outside the continental limits of the United States. During the fiscal year 1940, $168,387,884.83 was paid in compensation to service connected World War veterans.

Veterans, Nonservice Connected.—As of June 30, 1940, pensions were being paid to 60,296 totally disabled World War veterans whose disabilities were not of service origin. This number showed an increase of 7,360 in the pension roll during the fiscal year 1940. Of the 60,296 veterans, 1.28 per cent were over 68 years of age, 2.92 per cent were over 62 years of age, and 7.58 per cent were over 55 years of age. The disbursements during the fiscal year 1940 for pensions to nonservice connected World War veterans totaled $19,324,715.45.

Emergency Officers.—As of June 30, 1940, 1,801 Emergency Officers of the World War were entitled to receive retirement pay. However, only 1,772 were receiving full pay and 12 were receiving partial pay. Of the partial payment group, six were due to the beneficiary being an enlisted man of the Regular Army and six were due to the application of section 212 of Public No. 212, 72nd Congress, approved June 30, 1932, which provided that, in case the salary of any retired officer (except those whose disability was incurred in combat with an enemy of the United States) in the employ of the Federal Government together with the retirement pay exceeds $3,000 per annum, the retirement pay should be reduced or discontinued so that the sum of the two shall not exceed $3,000. Of the remaining 17 eligible cases, complete forfeitures were made for the following reasons: 13 were due to section 212 cited above; two were in active duty in the National Guard and two were incompetent—estate over $1,500. The disbursements for Emergency Officers retirement pay during the fiscal year 1940 totaled $2,936,259.11. Of the 1,801 Retirement Officers entitled to retirement pay on June 30, 1940, 1,764 served in the Army, 24 in the Navy, and 13 in the Marine Corps.

Deceased Veterans, Service Connected.—On June 30, 1940 compensation was being paid to the dependents of 99,479 veterans who died in service or as a result of diseases or injuries incurred in service during the World War. These dependents totaled 143,602 and were classified as follows: 29,947 widows, 32,576 children, and 81,079 parents. An analysis of the principal causes of death of service-connected World War veterans whose dependents were receiving benefits as of June 30, 1940, discloses that 30 per cent were tubercular ailments, 26 per cent were injuries, principally wounds in action, and 24 per cent were diseases of the respiratory system other than tuberculosis. A further study reveals that in 32 per cent of these death cases, death occurred prior to July 2, 1921, the official ending date of the World War. The disbursements for service-connected death compensation during the fiscal year 1940 totaled $56,799,064.01.

Deceased Veterans, Nonservice Connected.—Public No. 484, 73rd Congress, approved June 28, 1934, authorized the payment of compensation to the widows and children of World War veterans who died from disabilities of nonservice origin while receiving compensation for a service-connected disability rated 30 per cent or more and where death was not due to misconduct. This act was amended June 29, 1936 by Public No. 844, 74th Congress which included the presumptive cases and eliminated the misconduct clause. On Aug. 16, 1937, Section 1, Public No. 304, 75th Congress, reduced the percentage of service-connected disability from 30 to 20 per cent as pertaining to a widow's claim providing a child was born of the marriage and to minor children in case of the death or remarriage of the widow. This section was repealed May 13, 1938 by Section 4, Public 514, 75th Congress, which reduced the rate of service-connected disability from 20 to 10 per cent providing marriage to the veteran occurred prior to May 13, 1938. On June 30, 1940 compensation was being paid to the dependents of 17,524 deceased World War veterans, nonservice-connected. These dependents were classified as follows: 14,949 widows and 26,232 children. The disbursements for this purpose during the fiscal year 1940 totaled $7,398,337.98.

HOSPITALIZATION

On June 30, 1940 the hospital load of the Veterans' Administration was 56,841. Of this number 56,596 were United States veterans classified by service as follows: World War, 50,912;

GRAND TOTAL—PENSIONS AND COMPENSATIONS

War	On Roll June 30, 1940	Disbursements Fiscal Year 1940
Honor Roll—Yellow Fever Experiments		
Living veterans	10	$ 15,000.00
War of 1812		
Deceased veterans	1	240.00
Mexican War		
Deceased veterans	130	84,613.33
Indian Wars—Total	6,271	3,177,954.84
Living veterans	2,216	1,694,482.65
Deceased veterans	4,055	1,483,472.19
Civil War—Total	52,522	27,790,252.93
Living veterans	2,381	3,158,998.10
Deceased veterans	50,141	24,631,254.83
Spanish American War—Total	216,950	127,427,375.83
Living veterans	159,230	106,203,201.30
Deceased veterans	57,720	21,224,174.53
Regular Establishment—Total	46,177	15,811,766.25
Living veterans	36,051	12,728,872.47
Deceased veterans	10,126	3,082,893.78
World War—Total	527,247	254,846,261.38
Living veterans	410,244	190,648,859.39
Service connected	348,164	168,387,884.83
Nonservice connected	60,296	19,324,715.45
Emergency Officers	1,784	2,936,259.11
Deceased veterans	117,003	64,197,401.99
Service connected	99,479	56,799,064.01
Nonservice connected	17,524	7,398,337.98
Grand Total—Pensions and Compensations	849,308	429,153,464.56
Living veterans	610,132	314,449,413.91
Deceased veterans	239,176	114,704,050.65

Spanish American War, 2,900; Civil War, 37; all other wars, expeditions and occupations, 68; and Regular Establishment, 2,679. Other hospital patients included 28 allied veterans of the World War, 91 employees of the Civilian Conservation Corps and Works Progress Administration, and 126 miscellaneous beneficiaries. Of the 56,596 United States veterans 78.22 per cent were receiving treatment for disabilities not of service origin. Veterans to the number of 52,844 were in facilities controlled by the Veterans' Administration, 2,731 in other government hospitals, and 1,021 in state or civil institutions. Over 64 per cent of these veterans were receiving treatment in facilities located in the state of their reported addresses.

The admissions for the fiscal year 1940 were the highest of any fiscal year to date. These admissions included 179,497 United States veterans, 151 allied veterans of the World War, 1,451 employees of the Civilian Conservation Corps and Works Progress Administration, and 1,037 miscellaneous beneficiaries. Of the 179,497 United States veterans, admissions were authorized for 11,322 for observation and treatment of tuberculosis, 9,862 psychotic or mental diseases, 14,346 for other neurological disorders, and 143,967 for general medical and surgical conditions.

During the fiscal year 1940, 238,202 United States veterans were under hospitalization. Of this number, 178,668 were discharged after an average of 77 in-patient days. Patients who remained until the completion of treatment numbered 145,315 or 81.33 per cent of the total discharges. Approximately 79 per cent of the veterans discharged during this fiscal period had been under treatment for general medical or surgical conditions, 14 per cent for neuropsychiatric diseases and seven per cent for tuberculosis. The veterans discharged during the fiscal year were classified as follows: World War, 10,296 service connected and 140,127 nonservice connected; Spanish American War, 101 service connected and 12,077 nonservice connected; Regular Establishment, 2,858 service connected and 4,433 nonservice connected; Civil War, 141 nonservice connected; and miscellaneous occupations, rebellions, etc., two service connected and 218 nonservice connected. Other discharged patients included 166 allied veterans, 1,458 employees of the Civilian Conservation Corps and Works Progress Administration, and 1,069 miscellaneous beneficiaries.

DOMICILIARY CARE

At the close of the fiscal year 1940 the veteran population reported as present in domiciliary status in facilities under the control and jurisdiction of the Veterans' Administration totaled 16,518. This number was divided as to color and sex as follows: white males, 14,583; white females, 138; colored males, 1,797. The percentage distribution of the above veteran patients by wars were: World War, 92.27 per cent; Spanish American War, 4.55 per cent; other wars, expeditions and occupations, 0.12 per cent; and peace-time service in the Regular Establishment, 3.06 per cent. An analysis of the causes of disabilities of these veterans shows 11,461 to be general medical and surgical conditions; 4,753, neuropsychiatric diseases; and 304, tubercular ailments. Over three-fourths of the domiciled veterans on June 30, 1940 were under care in facilities located in California, Kansas, Ohio, Tennessee, Virginia, and Wisconsin. The approximate average age of the veterans of each of the major wars who were present in domiciliary status at the close of the fiscal period was as follows: Civil War—95 years, Spanish American War—65 years, and World War—47 years.

During the fiscal year 1940, there were 29,111 veterans admitted for domiciliary care. Of this number, 26,410 or 90 per cent had served in the World War and 1,664 or 6 per cent in the Spanish American War. Approximately 92 per cent of the admissions were for disabilities not of service origin. Of the veterans admitted for domiciliary care during this period 73 per cent were treated for general medical and surgical conditions, 25 per cent for neuropsychiatric diseases, and 2 per cent for tubercular ailments.

During the fiscal year 1940, 27,954 veterans were discharged after an average of 5 2/3 months' domiciliary care. These discharges were classified as follows: 14,572 routine; 8,366 transfers within the same or to other facilities; 66 deaths; 773 ineligible for further care; and 4,217 without formal discharge including disciplinary reasons. Approximately 70 per cent of the veterans discharged had been treated for general medical conditions. Of the total discharged, 25,208 were World War veterans and of these 23,003 had been treated for nonservice connected disabilities.

In conformity with the act of Aug. 27, 1888 (U.S.C., title 24, Sec. 134), the Federal Government is required to reimburse state or territorial homes for disabled soldiers at the rate of $120 per year for each person domiciled therein who is eligible for similar care in facilities controlled by the Veterans Administration. During the fiscal year 1940 an average of 6,218 such persons were cared for in these homes, thereby creating an obligation of over $1,368,010 on the part of the Federal Government. Public No. 250, 76th Congress, approved Aug. 1, 1939, increased the amount of Federal aid to state or territorial homes from $120 to $240 annually.

DENTAL CARE

During the fiscal year 1940 dental care was provided for 45,453 hospital patients, 10,879 domiciliary members and 3,908 out-patients in clinics maintained by the Veterans Administration at an annual cost of $974,631. Had these services been secured through the medium of private practitioners, the cost would have approximated $1,782,065. Dental treatment was provided for 183 employees of the Civilian Conservation Corps amounting to $1,379. During this fiscal period, 32,005 artificial dentures were made and 8,519 repaired in dental clinics of the Veterans Administration. Dental treatment was authorized to private practitioners for 2,032 veterans amounting to $84,581 during the same period.

OUT-PATIENT EXAMINATIONS AND TREATMENTS

During the fiscal year 1940, 1,124,374 physical examinations for out-patient purposes were made in field facilities. Of these examinations 98 per cent were medical and 2 per cent dental. Treatments furnished during the year for out-patient purposes totaled 1,169,684, 91 per cent of which were medical and 9 per cent dental.

CIVILIAN CONSERVATION CORPS

The primary functions of the Veterans Administration in its relationship to the Civilian Conservation Corps work have been to determine the eligibility of applicants for membership in the veterans contingent, to select from the eligible applicants the requisite number to maintain the authorized quota at full strength, and to certify such selectees to the War Department for physical examination and enrollment.

The total authorized strength of the veterans contingent of the Civilian Conservation Corps is 27,200, which represents approximately 9 per cent of the Corps strength. As of June 30, 1940 there were 23.666 veterans in enrollment status. There have been approximately 195,000 enrollments in the veterans contingent of the Corps since the spring of 1933. The total number of veterans and their dependents who have received direct monetary benefits through allotments is approximately 500,000.

The Civilian Conservation Corps is continuing to fulfill the two primary purposes for which it was organized, namely: the conservation of our national resources and the provision of employment and training opportunities for the unemployed who are unable to obtain employment in private industry. The opportunities offered by the Corps to the unemployed veteran have been outstanding and of material economic and social value to him and his dependents.

FINANCE

Appropriation	Disbursements
Salaries and expense (general administration)	$ 94,338,766.75
Printing and binding	117,365.70
Medical hospital and domiciliary services	−2,535.57[1]
Public Works Administration Act of 1938 (allotment to Veterans Administration 1938–1940)	7,659,254.93
Hospital and domiciliary facilities and services. Veterans Administration (construction)	5,978,545.60
Army and Navy pensions	429,153,464.56
Military and naval insurance	19,601,576.82
United States Government life insurance fund	69,812,755.14[2]
Adjusted service certificate fund	9,234,571.86
Adjusted service and dependent pay	681,304.19
Vocational training	−2,916.26[1]
Allotments and allowances	−504.91[1]
General post fund	34,727.42
Funds due incompetent beneficiaries	128,332.07
Personal funds of patients, Veterans Administration	2,226,274.56
Miscellaneous	165,714.03
Total	$639,126,696.89

[1] Credits.

[2] Includes encumbrances.

IX. DEFENSE AND ARMAMENT

WATERWAYS AND HARBORS

By Julian L. Schley

Major General, U. S. A.; Chief of Engineers, War Department

INLAND WATERWAYS

The principal inland navigable waterways are the Great Lakes; the New York State Canal system; the Mississippi River system, embracing the Mississippi, Ohio, Illinois Waterway to Chicago, Missouri, Tennessee, Monongahela, Allegheny, Kanawha, Arkansas and Red Rivers, and other streams; the rivers of the Atlantic Coast and the Intracoastal Waterway connecting these rivers; the Gulf Intracoastal Waterway from St. Marks River in Florida, *via* Mobile, New Orleans, and Galveston, down the Texas Coast to Corpus Christi, connecting with streams of southern Georgia, Alabama, Mississippi, Louisiana, and Texas, and with the Mississippi River system; the San Joaquin-Sacramento system in California; the Columbia River in the northwest; and the smaller Pacific Coast rivers.

The Great Lakes have natural deep water except in the connecting channels, these channels having been artificially deepened where necessary to accommodate vessels with draft of 24 feet; and the Welland Ship Canal joining Lake Erie and Lake Ontario, as improved by Canada, affords passage for vessels having drafts ranging up to 23.5 feet. The more important harbors on the Great Lakes accommodate vessels with drafts of 22 and 24 feet. The 12-foot New York State Barge Canal is being deepened to 14 feet between the Hudson River and Lake Ontario at Oswego.

The Atlantic Intracoastal Waterway extends from New England to Florida and follows a route through the coastal sounds, bays and rivers, various canals, and reaches of open waters. The Cape Cod Canal, a link of the waterway, has an authorized depth of 32 feet at mean low water and minimum width of 500 feet. Between the Delaware River and Chesapeake Bay, a sea-level channel following the Chesapeake and Delaware Canal has an authorized depth of 27 feet. The Intracoastal Waterway leading southward from Chesapeake Bay at Norfolk, Va. has been completed to project depths of not less than 12 feet to Winyah Bay, S. C., and deepening to like depth thence to the St. Johns River, Fla., is under way as authorized by Congress. Along the Florida Coast the waterway has depths of eight feet to Miami and seven feet in the 63-mile section below to Key Largo. A canal six feet deep has been provided across southern Florida.

On the Gulf Coast projects have been adopted to provide an intracoastal waterway not less than nine feet in depth from St. Marks River, Fla., to Corpus Christi, Tex., more than 1,000 miles, and this depth is in general available from Carrabelle, Fla. to Freeport Harbor, Tex. Dredging of the waterway extending southwest of Freeport is in progress. The Mississippi has a 9-foot depth from Baton Rouge to St. Louis, and thence by a series of 26 locks and dams a channel of like depth to Minneapolis, Minn. Beginning in 1940, the latter reach was in operation throughout for the first time.

IMPROVEMENT OF NEW WATERWAY PROJECTS

At the close of the fiscal year 1940, there were approximately 1,000 authorized river and harbor projects in force, active operations having been carried out on 385 of these projects and 49 having been completed during the year. There were also some 400 flood control projects in force.

MISSISSIPPI RIVER SYSTEM

The Mississippi River navigation system comprises several thousand miles of connecting channels, the improvement of which has involved the construction of locks and dams and contraction works consisting of dikes and revetments to regulate stream flow and stabilize channel alignment; also, reservoir construction and periodic dredging through recurring river bars have been undertaken to improve navigation. The authorized channel depths at ordinary low water in the Mississippi River and its principal tributaries, upon which improvement has been completed or is in progress and well advanced to completion, are: Mississippi River, 35 feet from the Gulf of Mexico to Baton Rouge, La., thence 9 feet to St. Paul and Minneapolis; Missouri River, 6 feet to Sioux City, Ia.; Ohio River, 9 feet to Pittsburgh; Illinois River, 9 feet to Chicago; Tennessee River, 9 feet to Knoxville, Tenn.; Cumberland River, 6 feet to a point some 130 miles above Nashville, Tenn.; Monongahela River, 9 feet (controlling depth) to Point Marion, Pa., and thence 7 feet to Fairmont, W. Va.; Allegheny River, 9 feet to East Brady, Pa.; Kanawha River, 9 feet to Kanawha Falls, W. Va.; Little Kanawha River, 4 feet to Creston, W. Va.; Muskingum River, 4.5 feet to vicinity of Dresden, Ohio; Big Sandy River, 6 feet to above Louisa, Ky.; Kentucky River, 6 feet to Beattyville, Ky.; Green and Barren Rivers, 4 feet to Bowling Green, Ky.; Arkansas River, clearing of channel in lower 465 miles; Ouachita River, 6.5 feet to Camden, Ark.; White River, clearing channel of obstructions to Batesville, Ark.; Red River, clearing of obstructions to Fulton, Ark.; Black River, clearing of obstructions to Poplar Bluff, Ark.; Current River, clearing of obstructions to Van Buren, Mo.; St. Francis River, clearing of obstructions to Marked Tree, Ark.; and Wolf River, 9 feet at Memphis, Tenn.

The Fort Peck Dam on the Missouri River in Montana is also included in the Mississippi system. Construction of this dam, of unprecedented dimensions, is now practically completed. It will create a storage reservoir of some 20,000,000 acre feet capacity, thus permitting the regulation of stream flow for navigation and other purposes. The impoundment of water in the reservoir has begun and facilities to develop hydroelectric power are being installed, as authorized by Congress.

SAN JOAQUIN-SACRAMENTO SYSTEM

The improved channels in Suisun Bay, San Joaquin and Sacramento Rivers, tributary to San Francisco Bay, now provide depths of 30 feet to Stockton on the San Joaquin and 10 feet to the City of Sacramento. These channels and their improved tributaries support a substantial annual water-borne commerce.

COLUMBIA RIVER SYSTEM

Improvement of the Columbia River for navigation has involved, in addition to dredging and channel contraction works, the construction of jetties, monumental in character, at the entrance from the Pacific Ocean, and construction of the Bonneville Dam, 42 miles east of Portland, Ore. The jetties, completed more than 20 years ago, have proved eminently successful in maintaining a safe deep-water channel through the exposed ocean bar. Bonneville Dam with its ship lock, completed in 1938, and with channel deepening now in progress in the river below to Vancouver, will provide for extension of deep-draft navigation to The Dalles, Ore., 45 miles above Bonneville and 188 miles above the Pacific Ocean. The Columbia River projects provide for depths of not less than 40 feet at the mouth, 35 feet to Portland, 30 feet to Vancouver, 27 feet to Bonneville, and thence to The Dalles, and 7 feet above The Dalles to Wallula. The ship lock at Bonneville has an unprecedented lift of 66 feet at extreme low water, while facilities for the safe passage of salmon and other migratory fish to and from the spawning grounds in the river above the dam constitute an outstanding accomplishment in fishway design. The initial hydroelectric power installation at Bonneville Dam, consisting of two main generating units with a capacity of 43,200 kilowatts each, is in operation and the installation of four additional generating units of 54,000 kilowatts capacity each, as requested by the Bonneville Power Administrator, is now under way.

MISSISSIPPI RIVER FLOOD CONTROL

The flood control project for the Mississippi River in its alluvial valley and for its improvement from the Head of Passes to Cape Girardeau, Mo. was adopted by the Act of May 15, 1928, and amended by the Acts of June 15, 1936 and June 28, 1938. The total authorization for the adopted project, as amended, is $637,000,000, of which $420,000,000 has been appropriated and expended or scheduled for expenditure before the next appropriation becomes available.

The amendments retain the purposes and the completed features of the 1928 act, and authorize extension of flood control work in the alluvial valley of the Mississippi River from Cape Girardeau, Mo. to the Gulf of Mexico, including the St. Francis, Yazoo, Tensas and Atchafalaya Basins, as well as the alluvial lands around Lake Pontchartrain, for protection against the maximum predicted flood. North of the Arkansas River, floods will be confined generally to the main leveed channel; however, a limited area in the St. Francis Basin and the City of Cairo, Ill. are given additional protection by the New Madrid Floodway. South of the Arkansas River, flood waters, in excess of what the leveed channel of the main river will carry safely, will find their way to the Gulf through floodways located in the lowlands west of the river. New Orleans is given additional protection by the Bonnet Carre Spillway, emptying into Lake Pontchartrain, a few miles above the city. In addition to levee work, the project includes construction of revetments and regulating works to prevent bank caving and to stabilize the channel in the interest of navigation.

The project as amended includes the Eudora floodway through the Macon Basin and a back protection levee extending from the head of this floodway north to Arkansas River. South of the Red River it provides for construction of the Morganza floodway extending from the Mississippi River north of Morganza into the Atchafalaya floodway south of Krotz Springs and for the improvement of the discharge capacity of the Atchafalaya River and of its outlets, as well as the construction of an additional outlet from the Atchafalaya Basin to the Gulf of Mexico, *via* Wax Lake, La.

NATIONAL FLOOD CONTROL

A definite flood control policy, providing for the construction of economically justified flood control projects throughout the United States by the Federal Government in co-operation with the States, political subdivisions thereof, or other local interests, was established by Act of Congress approved June 22, 1936. The Flood Control Act, approved June 28, 1938, provides for a material expansion of Federal participation in flood control.

The projects that have been entirely or nearly completed include Arkport Dam, N. Y.; Tygart Dam, W. Va.; Tionesta and Crooked Creek Dams in Pennsylvania; Conchas Dam, N. M.; 14 dams in the Muskingum River Basin, O.; and local protection works at several cities and towns in the Connecticut and Ohio River Valleys, at Augusta and Rome, Ga., and at several localities along the Columbia River, in Washington and Oregon. Among the works under way or about to be placed under way are: reservoir and local protection projects in the Merrimack and Connecticut River Basins, Conn., Mass., N. H., and Vt.; reservoirs and several local protection projects for the southern New York and northern Pennsylvania area; levees and related works for the protection of several cities and towns along the Susquehanna River, Pa.; Mahoning, Loyalhanna, and Youghiogheny Dams in Pennsylvania for the protection of Pittsburgh, and for the reduction of floods in the Ohio River Basin generally; channel improvement work to protect Johnstown, Pa.; local protection for several cities and towns along the main stem of the Ohio River; reservoirs supplemented by channel improvements within the Los Angeles, San Gabriel, and Santa Ana River Basins, Calif., for the protection of the metropolitan areas in Los Angeles and Orange Counties, Calif.; and reservoirs in the Willamette River Basin in Oregon.

WATER-BORNE COMMERCE AND TERMINAL FACILITIES

For the calendar year 1939 the total net water-borne commerce of the United States, after eliminating all known duplications of traffic, amounted to 569,400,000 short tons. Outstanding examples of new terminal developments and of the enlargement or improvement of existing terminals and the installation of new equipment are discussed under the subheadings following. State, municipal, and private interests constructed numerous smaller terminals and made various other improvements at many localities during the year.

NORTH ATLANTIC PORTS

Providence, R. I.—The City of Providence has completed about 85 per cent of the work on a 1,300-foot extension to the sea wall at the Municipal Pier at Field Point, and the area behind this wall will be filled in for use as a municipal wharf.

New London, Conn.—The Municipal Pier at the foot of State Street was rebuilt.

Boston.—Late in the year work was begun by the Commonwealth of Massachusetts on a turning basin, 40 feet deep, 1,250 feet long, and up to 200 feet wide, opposite Commonwealth Pier No. 5. An open pile, timber decked wharf, 150 feet long and providing 462 feet of berthing space with the use of dolphins was built by private interests in Weymouth Fore River.

New York.—The Department of Docks, City of New York, has completed improvements at Piers 2 and 45, removed old Pier 26 and constructed a new pier. It has practically completed the construction of Pier 64 and has continued work on repairs and improvements at Piers 32 and 99, all of which are located on North River. Work was in progress on a steel sheet pile bulkhead at Sound View Park, Bronx River; and work was completed on the bulkhead wall seaplane basin, seaplane ramp, submarine cables, and approach light system at North Beach Airport, La Guardia Field. Piers 15 and 16 in the New York foreign trade zone were repaired. At Jersey City, the Pennsylvania Railroad reconstructed its coal dock and modernized the handling facilities at its Greenville Yard on New York Bay. Jersey City completed repairs at Pier "B" on the Hudson River and at the city wharf on Henderson Street at the Tidewater Basin. A seaplane basin, 1,260,000 square feet in area, was completed at Newark, N. J.

Albany, N. Y.—Work was begun on a shipyard which, when completed, will accommodate 12,000-ton ships. An oil company installed three additional tanks, increasing the oil-storage capacity of its plant by 105,000 gallons.

Trenton, N. J.—At Duck Island, near Trenton, two bulk petroleum terminals were constructed, one with a capacity of 535,000 and the other of 700,000 gallons.

Camden, N. J.—Property formerly used as ferry slips was acquired by a shipbuilding corporation, and two shipways were constructed which can accommodate vessels up to 300 feet in length.

SOUTH ATLANTIC PORTS

Washington, D. C.—Work was initiated on two of the three yacht basins to be constructed on the north side of Washington Channel, Potomac River. At one of the basins a large sales and service building was completed on a pier equipped with a vertical boat hoist.

Norfolk, Va.—A cement corporation began building an island pier with two 20-pile clusters to form a mooring at which cement in bags can be loaded on ships and barges by an overhead steel bridge and traveling crane.

Richmond, Va.—Work on the deep-water terminal, about 4½ miles below the city, was well advanced to completion; it will include a wharf wall 1,250 feet long and 59½ feet high, brick warehouses, a 30,000-gallon elevated tank for fresh water, a 10-ton crane, and other facilities.

Georgetown, S. C.—A paper corporation continued the construction of a marine railway 320 feet long at its mill property on the north side of Sampit River.

Morehead City, N. C.—Three tanks with a total capacity of 23,800 barrels were installed for the storage of road asphalt oils.

Wilmington, N. C.—A 6,732-barrel tank for storing molasses and an additional gasoline tank with a capacity of 44,000 barrels were provided.

Savannah, Ga.—Oil companies by installing four additional tanks increased the oil-storage capacity of the port by 80,000 barrels. Two electro-magnet steam-driven cranes were installed on lighters 100 feet by 40 feet, each having an 85-foot boom with a lifting capacity of 50 tons on a 50-foot radius.

Jacksonville, Fla.—A modern general cargo terminal providing docking space for two steamers at a time and equipped with warehouses and rail connections was completed. Facilities were provided by a chemical company for the open storage of sulphur.

Fort Pierce Harbor, Fla.—Additional dockage and storage facilities were provided by a lumber company at its plant on Taylors Creek Channel.

Hollywood Harbor (Port Everglades), Fla.—The Broward County Port Authority made extensive improvements including the construction of new Slip No. 2 to a length of 700 feet and a steel sheet-pile bulkhead. Other improvements made by the Port Authority include a wood frame, metal-covered lumber shed near Pier No. 2. A wholesale lumber company constructed three lumber warehouse units; oil companies added a new tank and additional pumping facilities.

GULF COAST PORTS

Tampa, Fla.—A new ship launching-way was constructed, a 30-ton gantry crane was provided for use in connection therewith, and a 40 by 100-foot extension was added to the company's outfitting warehouse. On the east side of Ybor Channel, a timber-frame warehouse unit with corrugated iron sides and roof and concrete floors was provided making 24,500 additional square feet of storage space, while on the west side an additional 36,500 square feet of space was provided. Warehouse units were also constructed by two companies on the north side of Garrison Channel. Work was begun on the erection of five 25,000-barrel tanks with 6-inch pipe-line wharf connections for storing petroleum products delivered by tanker.

Mobile, Ala.—The Alabama State Docks Commission completed a slip 1,000 feet long, north of Pier C, a concrete wharf 1,225 feet long along the south side of the slip, and a transit shed 130 feet wide and 1,000 feet long. A fertilizer storage and handling plant was completed with a system of modern conveyors for handling materials in bulk between ship, barge, storage, car, or truck.

Gulfport, Miss.—The City of Gulfport completed a new track-side warehouse consisting of four sections, each 160 feet wide and 220 feet long, with an inside height of 24 feet. The new structure is connected by a ramp to the west pier shipside warehouse, and the two warehouses are served by three marginal tracks. The warehouse is operated by the Gulfport Port Commission and open to all shippers on equal terms.

Port Arthur, Tex.—A general cargo wharf on the east side of Slip No. 3 opposite the east turning basin was purchased by an oil company and converted into an oil loading wharf.

Beaumont, Tex.—The Beaumont Port Commission completed a warehouse and a wharf each 500 feet long adjacent to the turning basin. An oil company constructed a 200-foot barge loading wharf at Smith's Bluff Cut-off on the Neches River channel.

Galveston, Tex.—A wharf 25 feet wide and 975 feet long was built for use in connection with ship repair work.

Texas City, Tex.—A terminal company erected a sea-train facility for loading and unloading freight cars and constructed a sheet pile bulkhead on the north side of Slip No. 1 to provide a berth for the sea-train vessels.

Houston, Tex.—The Port Commission reconstructed Wharf No. 13 at the turning basin, providing refrigerator compartments on the upper floor for handling transit frozen products.

Brazos Island Harbor, Tex.—The Brownsville Navigation District constructed a reinforced concrete open wharf and two open steel sheds on the north side of the turning basin, one providing 45,000 square feet and the other 30,000 square feet of space.

PACIFIC COAST PORTS

San Diego, Calif.—New equipment was provided at the city terminals including a 13½-ton crane mounted on a 10-wheel chassis with two 98 horsepower tractors.

Los Angeles.—The wooden wharf apron about 2,500 feet long fronting the transit sheds at Berths 57 to 60 in the outer harbor was removed and replaced with a new apron of asphalt impregnated concrete bearing piling, with a reinforced concrete deck and creosoted wooden piling system. A 640-foot addition was made to the petroleum-loading wharf at Berth 169 in the inner harbor.

Long Beach, Calif.—Work completed in the outer harbor included the construction of a timber quay wharf, 66 feet wide and 1,500 feet long, and a fireproof transit shed 992 by 160 feet with mezzanine floors for passenger service. A wooden frame storage shed of 12,000 square feet was constructed in the inner harbor.

Hueneme, Calif.—Early in 1939 the Oxnard Harbor District undertook the construction of an artificial harbor at Hueneme, about 65 miles northwest of Los Angeles Harbor. The construction of a channel, basin, and protective works is completed, and work is in progress on a quay-type wharf, 65 by 1,200 feet, a transit shed 100 by 650 feet, and related works.

Oakland.—Additional equipment was placed in service at the Seventh Street unit to facilitate the handling of copra and babassu nuts. The inner harbor construction program provided for a wide variety of improvements, including new structures at the foot of Clay Street to provide a central storage area for materials and equipment, the rehabilitation of the Frederick Street wharf, and other improvements and repairs to port industrial structures and wharves. The terminal company started the reconstruction of Pier No. 2 to provide modern gantry crane equipment for handling bulk products. A milling company extended its wharf and constructed a tower and trestle for conveying grain products directly between the plant and vessels berthed at the wharf.

Stockton, Calif.—At the privately operated cotton compress and warehouse, 33,600 square feet of additional storage space was added. Private interests constructed a 1,500,000-gallon tank for the storage of crude molasses, and a 10-inch pipe-line connection to the Port of Stockton Pier No. 8. A second oil terminal was constructed on private property.

Seattle.—Pier No. 40 was extended on the inboard end by the construction of more than 83,000 square feet of timber aprons on creosoted pile bents and two new transit sheds were added, each 90 feet by 500 feet.

Portland, Ore.—Port Terminal No. 1 was improved by the installation of a 100-ton sheer-leg derrick. Work was started on the rebuilding of an elevator which was seriously damaged by fire.

Vancouver, Wash.—Six storage bins were added at a grain terminal giving the elevator a capacity of 2,675,000 bushels; five new fuel oil and gasoline storage tanks with a combined capacity of 2,700,000 gallons were added by one oil company, and a 10,000-barrel fuel oil tank was installed by another. Construction of a new sawmill served by a 320-foot wharf was started.

Gardiner, Wash.—A sawmill was reconstructed during the year with necessary docks and new machine equipment was installed.

GREAT LAKES PORTS

Duluth-Superior.—Four additional oil tanks, with a combined capacity of 158,000 barrels, were installed at Superior.

Menominee Harbor, Mich. and Wis.—A dock frontage of 1,200 feet, with berthing space of 850 feet, was developed along the south bank of the Menominee River for the receipt of coal from self-unloading vessels.

Green Bay, Wis.—A terminal, consisting of a dredged slip 900 feet long and 140 feet wide, with ground storage space for 400,000 tons of coal, was constructed on the left bank of the Fox River. Coal is received from self-unloading vessels and is loaded from storage piles to cars or trucks by means of two gasoline cranes, each of which is capable of handling about 150 tons per hour. An oil company replaced a 300-foot timber dock with a steel sheet pile dock 430 feet long. A terminal equipped to unload bulk cement by a blow pipe-line powered by electrically-driven air compressors aboard the vessels was erected on the left bank of the Fox River. The plant consists of five silo bins and has a storage capacity of about 30,000 barrels. An oil terminal was established on the left bank of Fox River on a leased site, the plant consisting of a 25,000-barrel kerosene tank, a 30,000-barrel gasoline tank, and a 25,000-barrel tank for fuel oil, with pile clusters for mooring vessels while unloading.

Milwaukee.—The Board of Harbor Commissioners leased two terminal sites in the outer harbor to oil companies. The larger of these terminals has six gasoline tanks with a total capacity of 2,100,000 gallons. On the left bank of Kinnickinnic Basin an additional marine leg was installed at a grain elevator by means of which grain can be unloaded from vessels at the rate of 15,000 bushels per hour. A coal wharf was built on the north side of the South Menomonee Canal with ground storage space for 100,000 tons of coal.

Holland, Mich.—A terminal for the receipt of cement was constructed at Holland, the plant consisting of nine silo bins with a storage capacity of about 39,900 barrels served by a wharf. The city constructed a coal wharf 667 feet long with ground storage space for approximately 20,000 tons of coal. Another coal receiving terminal was built by private interests, the wharf having a berthing space of about 600 feet with ground storage space for about 75,000 tons of coal.

Grand Haven, Mich.—An oil terminal consisting of a pipe-line for unloading vessels, four pile clusters for mooring vessels, and three gasoline storage tanks with a combined capacity of 125,000 barrels were constructed on the right bank of the south channel of the Grand River.

Muskegon, Mich.—A plant for the receipt of cement from vessels, consisting of five silo bins with a storage capacity of about 30,000 barrels, was completed during the year.

Chicago.—Elevators on the Calumet River which burned during the year were rebuilt to a capacity of 3,000,000 bushels of grain. A modern gasoline and blending plant, equipped to transfer its products either to deep-draft vessels or to barges, was constructed along the east side of the Calumet River Branch of the Indiana Harbor Canal.

Jackson, Mich.—Work was started on a wharf designed to receive coal for a two-unit 70,000 kilowatt steam power plant built during the year to serve the Saginaw River industrial district. The wharf is 650 feet long and is protected by a row of 24 wooden pile clusters.

Monroe, Mich.—During the year a municipally-owned terminal was completed, consisting of approximately 640 acres of land for industrial and public terminals, 1,200 feet of steel sheet pile bulkhead along the turning basin, a one-story transit shed, and a 16-foot concrete apron between the shed and the dock face.

Toledo.—A cement company leased a 600-foot timber pile wharf for receiving and storing cement and aggregate for a ready-mixed concrete plant. Two cranes with capacities of 15 and 20 tons are available at the wharf. A new oil terminal was built on the east side of the Maumee River, consisting of a timber and pile bulkhead wharf and two tanks with a capacity of 80,000 barrels.

Rochester.—A marine railway, 12 feet wide, bordered along each side by a four-foot wharf and extending 40 feet riverward from the shore line, was built on the east side of the Genesee River.

Cape Vincent Harbor, N.Y.—A steel sheet pile bulkhead, 134 feet long, was constructed along the St. Lawrence River at the foot of Center Street. Two 10-ton railroad cranes were installed on the bulkhead for use in unloading pulpwood.

NET TOTAL INLAND WATERWAY COMMERCE, 1930-39:

Year	Short Tons	Year	Short Tons
1930	226,760,000	1935	225,918,000
1931	179,735,000	1936	276,264,000
1932	151,276,000	1937	313,287,000
1933	182,965,000	1938	277,755,000
1934	194,786,000	1939	329,400,000

COMMERCE THROUGH THE PANAMA CANAL

Fiscal Year	Intracoastal[1] (Short Tons)	Total (Short Tons)
1931	9,862,020	28,092,736
1932	7,417,742	22,184,958
1933	7,197,801	20,280,655
1934	9,877,602	27,684,889
1935	8,919,019	28,346,670
1936	8,645,364	29,686,562
1937	7,324,792	31,481,380
1938	7,161,924	30,672,235
1939	7,711,200	31,210,622
1940	8,639,680	30,574,898

[1] Included in coastwise figures.

COASTWISE COMMERCE AT PORTS

(Including Intracoastal, Calendar Year 1939)

	Short Tons
ATLANTIC COAST PORTS:	
Portland, Me.	2,515,777
Boston, Mass.	13,943,233
Providence, R. I.	5,173,722
New York, N. Y.	42,034,824
Philadelphia, Pa. (Philadelphia to the Sea)	21,570,648
Baltimore, Md.	7,634,464
Norfolk, Va.	13,921,247
Newport News, Va.	6,238,569
Wilmington, N. C.	1,436,501
Jacksonville, Fla.	2,189,898
All others, Atlantic Coast	24,249,619
GULF COAST PORTS:	
Tampa, Fla.	2,541,921
Pensacola, Fla.	156,242
Mobile, Ala.	1,718,174
New Orleans, La.	5,544,196
Baton Rouge, La.	3,949,295
Galveston, Tex.	2,104,782
Texas City, Tex.	8,528,866
Houston, Tex.	16,882,268
Port Arthur, Tex.	15,237,735
Beaumont, Tex.	16,716,277
Corpus Christi, Tex.	5,432,912
All others, Gulf Coast	11,822,844
PACIFIC COAST PORTS:	
Los Angeles, Calif.	12,659,887
San Francisco, Calif.	2,931,105
Other San Francisco Bay ports	15,568,818
Portland, Oreg.	4,564,679
Tacoma, Wash.	1,560,553
Seattle, Wash.	4,242,434
All others, Pacific Coast	22,086,311
NONCONTIGUOUS PORTS:	
Ports of Puerto Rico and Virgin Islands	1,695,118
Ports of Alaska	380,498
Ports of Hawaii	4,546,761
GROSS TOTAL, COASTWISE COMMERCE AT ALL PORTS EXCEPT GREAT LAKES	301,780,178
NET TOTAL, ALL PORTS, corrected for duplications of receipts and shipments	150,890,089

INLAND WATERWAY COMMERCE

The following table shows the freight traffic for 1939 for waterways under improvement by the Federal Government, excluding the traffic on short deep stretches of rivers like the lower Hudson and Delaware, which are considered approaches to ports, and such tonnage for the Detroit River as is in excess of that carried through the locks at Sault Ste. Marie:

	Short Tons
ATLANTIC COAST RIVERS:	
Hudson River (except lower section)	12,533,829
Delaware River above Philadelphia	3,984,820
Chesapeake Bay tributaries:	
Potomac River below Washington	2,659,836
James River	2,820,168
Other tributaries	3,887,452
St. Johns River above Jacksonville	670,649
All others, Atlantic Coast	7,378,145
GULF COAST RIVERS:	
Mobile River tributaries	1,776,742
Black Warrior, Warrior, and Tombigbee Rivers	1,929,044
Southern Louisiana Waterways (except Mississippi River)	6,452,592
All others, Gulf Coast	2,106,750
PACIFIC COAST RIVERS:	
San Joaquin River, Calif.	1,039,196
Sacramento River, Calif.	745,912
Columbia River System:	
Columbia and Lower Willamette Rivers below Vancouver, Wash., and Portland, Oreg.	14,802,917
Other sections of Columbia River	2,266,560
Willamette River above Portland, Oreg., and Yamhill River	2,248,071
Other Columbia River tributaries	2,164,744
All others, Pacific Coast	5,985,460
MISSISSIPPI RIVER SYSTEM:	
Mississippi River, Minneapolis to the Passes	29,506,270
Ohio River	25,955,345
Monongahela River	21,870,916
Allegheny River	2,953,990
Kanawha River	4,049,136
Cumberland River	986,839
Tennessee River, Knoxville to Paducah	1,115,213
All others, Mississippi River System	9,910,810
OTHER RIVERS (Not tributary to Atlantic, Gulf, and Pacific Coasts):	
Fox River	274,368
All others	24,506
FEDERAL CANALS AND CONNECTING CHANNELS:	
Atlantic Coast:	
Cape Cod Canal	4,982,234
Inland Waterway from Delaware River to Chesapeake Bay	3,034,807
Waterways from Norfolk, Va.—	
To Sounds of North Carolina	223,121
To Beaufort Inlet, N. C.	935,689
Waterway between Beaufort, S. C., and St. Johns River, Fla.	641,550
All others, Atlantic Coast	3,456,973
Gulf Coast:	
Intracoastal waterway, St. Marks River, Fla., to Corpus Christi, Tex.	8,167,640
All others, Gulf Coast	64,483,820
Pacific Coast:	
Lake Washington Ship Canal, Wash.	2,048,428
All others, Pacific Coast	2,738,870
Great Lakes:	
Keweenaw Waterway, Mich. (Through traffic)	120,348
St. Marys Falls (Soo) Canal	69,850,262
Sturgeon Bay and Lake Michigan Ship Canal	335,435
Detroit River (partial)	16,527,640
All others, Great Lakes	5,847,468
All others of record	6,693
TOTAL, rivers, canals, and connecting channels improved by the Federal Government	355,501,258
STATE AND PRIVATE CANALS:	
New York State Barge Canal System	4,689,037
Florida State Canals	176,472
Navigation Canal, New Orleans, La.	2,413,680
All other State and private canals	347,338
Total, State and private canals	7,626,527
GROSS TOTAL, ALL WATERWAYS OF RECORD, 1939	363,127,785
NET TOTAL TRAFFIC, corrected for duplications because of commerce moving over two or more waterways	329,419,983

FOREIGN AND DOMESTIC COMMERCE OF PORTS

(The Calendar Year 1939)

Grand Divisions	Foreign		Domestic	GRAND TOTAL
	Imports	Exports		
Atlantic Coast	29,908,756	16,506,695	279,258,511	325,673,962
Gulf Coast	4,605,191	25,099,769	114,119,374	143,824,334
Pacific Coast	3,339,847	16,104,935	92,200,785	111,645,567
Great Lakes	4,941,196	12,161,004	237,783,750	254,885,950
GRAND TOTAL:				
Unadjusted	42,794,990	69,872,403	723,362,420	836,029,813
Adjusted[1]	42,794,990	69,872,403	414,016,231	526,683,624

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[1] All known duplications of traffic eliminated.

THE UNITED STATES NAVY

BY H. W. GORDON, JR.

LIEUTENANT, U.S.N.; OFFICE OF THE CHIEF OF NAVAL OPERATIONS,
NAVY DEPARTMENT

EMPLOYMENT OF FORCES

Basic Policy.—The operations of the United States Naval forces during the fiscal year ended June 30, 1940 were conducted in accordance with the United States naval policy to maintain the Navy in strength and readiness to uphold the national policies and interests and to guard the United States and its continental and overseas possessions. Forces were disposed to operate with the minimum expenditure of funds.

Objectives.—In adhering to the naval policy, the employment of forces was effected with the following in view: (a) To make effectiveness in war the objective of all development and training; (b) to organize and maintain the Navy for major operations in both the Atlantic and Pacific Oceans; (c) to make foreign cruises for the cultivation of friendly international relations and for the varied training of personnel; and (d) to cooperate fully with the other departments and agencies of the Government.

Organization.—The ships of the Navy were maintained in the same general organization as in the recent past; namely, the United States Fleet, the Asiatic Fleet, the Special Service Squadron, Squadron Forty-T and the Naval Transportation Service. The Atlantic Squadron, an integral part of the United States Fleet, organized in January, 1939, operated throughout the fiscal year. This squadron included the former Training Detachment, recommissioned destroyers of the Neutrality Patrol, and certain new ships that were utilized on the Atlantic coast for periods prior to joining their own units in the Fleet. Small craft of a more seagoing type were maintained for service in the naval districts and at the naval shore stations. The shore establishments of the Navy performed vital services of the mission supporting the forces afloat.

OPERATING FORCE AND PERSONNEL PLANS

Purpose.—The operations of the seagoing units of the Navy are, in their broad scope, planned far in advance. The principal plans upon which the operations are based are the Operating Force Plan and the Personnel Plan for the fiscal year concerned. These plans must be developed together, as they determine the number of ships that can be operated with the personnel that is available for their operation. When the amount of the funds appropriated for the year is known these two plans can be adjusted to close agreement and the contributory plans brought into harmony with them.

Personnel.—During the fiscal year 1940 appropriations allowed for an average enlisted strength of 124,829, beginning the year with 110,000 and ending with 145,000. The regular appropriation provided for a maximum number of 116,000 to be reached by June 30, 1940. On Sept. 8, 1939 the President declared a national emergency, and by Executive Order directed that the enlisted strength be increased as rapidly as possible to 145,000 men. The authorized strength for Dec. 31, 1940 is 191,000 men which in the next four years will be built up to 425,000. In the Marine Corps the appropriations allowed for 18,500 enlisted men until the promulgation of the Executive Order when the number was increased to 25,000 men.

With this number of men it was apparent that complements could not be filled, and allowances were therefore prescribed which made the best compromise that could be worked out based on recommendations of the Commander-in-Chief, U.S. Fleet, and on past experience. The Chief of Naval Operations holds the view that when, in accordance with the approved naval policy, the composition of the Fleet is established, it is essential that adequate provision be made for manning the ships properly. The fighting efficiency of the Navy is dependent upon the personnel, both officers and men, who man it, and under-manned ships are always at a disadvantage. Therefore, with the entry into service of the new ships now authorized and being built, it is very important that the appropriate increases in personnel be obtained.

Ships in Commission.—During the fiscal year, the Navy Department, in furtherance of the established and approved naval policy, maintained in commission and operated at sea 460 ships. Of these ships, 330 were in commission throughout the fiscal year and 130 were in commission for only a portion of the fiscal year. There were also operated in the naval districts and stations, 193 small craft of various types and, in addition, four were ships loaned to the States of New York, Massachusetts, Pennsylvania, and California for state nautical school ships. The total number of naval vessels of all types that were in service, including the state school ships during the whole or part of the year, was 653. The ocean-going ships referred to above included 15 battleships, six aircraft carriers, 37 cruisers, 206 destroyers and light minelayers, 64 submarines, one minelayer, 10 patrol vessels, and 120 auxiliary vessels of various types. Included among these were the following new ships, first commissioned during the year: one aircraft carrier, one cruiser, 19 destroyers, eight submarines, one submarine chaser, two motor torpedo boats, one destroyer tender, two oilers, two transports, one survey ship, and three ocean-going tugs. Ships recommissioned during the year were 65 1200-ton destroyers, (exclusive of those converted to other types), four 1200-ton minelayers, and seven auxiliaries. The work of recommissioning 19 destroyers, 36 submarines and five auxiliaries was initiated.

Ships Placed Out of Commission.—The only ship placed out of commission was the *Squalus*. The following ships were stricken from the Navy Register: two submarine chasers, two gunboats, two merchant vessels, one patrol vessel and one rigid airship, the *Los Angeles*. Their material condition did not warrant retention or reconditioning.

THE UNITED STATES FLEET

Operations.—The United States Fleet remained concentrated during the fiscal year and was under the command of Admiral Claude C. Bloch, U.S.N., until Jan. 6, 1940, when Admiral James O. Richardson, U.S.N. assumed command. On Oct.

5, 1939 the Hawaiian Detachment consisting of certain designated units of the Fleet was formed under the command of the Commander, Scouting Force. This detachment operated in the Hawaiian area during the remainder of the fiscal year. The requirements of neutrality patrol duty, incident to the European war, were met originally in so far as practicable by various units of the U.S. Fleet. The requirements of the above-mentioned duty could not, however, be fully met by the vessels in commission without undue interference with normal employment. In order to augment the vessels employed on neutrality patrol duty 77 destroyers and light minelayers were recommissioned. On April 2, 1940, in accordance with the approved employment schedule, the United States Fleet departed from the West Coast for the Hawaiian area. Fleet Problem XXI was conducted during the fourth quarter in the Hawaiian-Northeastern Pacific Area. Upon completion of Fleet Problem XXI, the Fleet remained in the Hawaiian area and continued to operate from bases in those islands during the remainder of the fiscal year. Vessels of the Fleet were detailed to train Naval Reserves and Naval Reserve Officers' Training Corps units as in previous years. The Survey Expedition was engaged in conducting surveys along the North Coast of Venezuela and off-lying islands. The Atlantic Squadron was actively engaged in training Reserves and conducting Midshipmen's Practice Cruises. These cruises, often to European waters, were this year confined to the port of La Guaira, Venezuela, the Caribbean, and the United States Atlantic Seaboard. The destroyers of the Atlantic Squadron were engaged in neutrality patrol duty as well as routine training operations.

Tactics.—All units of the Fleet conducted periodical tactical exercises. These exercises have contributed to the proper indoctrination of the newly commissioned vessels and to the advancement in methods of employing the various types. Fleet Problem XXI was held as the final test of the year's tactical training. Subject to considerations of national policy, major units of the Fleet will continue to base in the same general operating areas as such concentration insures maximum opportunity for combined training of all units and types.

Gunnery.—The most important part of all Fleet programs and schedules is the continuous and active training in the use of all weapons. Ships and aircraft in active commission followed a schedule of progressive training for war and conducted gunnery exercises with their various weapons. The results were satisfactory, and considerable advancement was made in gunnery technique. Gunnery, torpedo, and aircraft schools continued to demonstrate their usefulness in providing primary training for both officers and men. The rifle and pistol ranges at San Clemente, Pearl Harbor, and Guantanamo facilitated rifle and pistol training of personnel of fleet units based in those areas.

Engineering Performance.—The engineering department of each ship in the Navy is subject to the observance of strict rules for the purpose of competition and for providing accurate data to insure uniform good practice, close attention to detail, and rigid economy. The engineering competition was extended to all ships of the seagoing forces. This was particularly valuable in the case of the recommissioned destroyers. They rapidly approached the economy and reliability standards set for destroyers under this competition. Reports of performances and derangements of all ships were carefully studied. Analyses were supplied to the material bureaus, with whom close liaison is maintained in order that the Fleet will be brought to the best possible condition of readiness.

NAVAL AVIATION

Aircraft.—The Bureau of Aeronautics continued and accelerated wherever possible the development, procurement, and maintainance of aircraft in accordance with the requirements of the Navy. Procurement of aircraft to fulfill the requirements of the treaty navy was largely confined under previous programs to replacement of aircraft on hand by improved models. With the passage of the act by Congress authorizing 10,000 airplanes for the Navy, plans were drawn up to fulfill the increased needs of the Navy. New and improved experimental models in all types were already under test or about to be delivered, development and experimental work long underway on the subjects of aircraft armor and self-sealing gasoline tanks was reaching the stage of fruitage, and reports from abroad had indicated that the concepts as to aircraft material and aircraft tactical usage held in the Bureau of Aeronautics were correct in their anticipated application to the actual warfare. Examples of this lie in the effectiveness of dive bombing by dive bombing aircraft which were pioneered, developed, and perfected in the U.S. Navy, in the development of high performance carrier aircraft, particularly fighters which also possess long range capabilities, and the capabilities demonstrated by long range patrol planes in protection of sea routes.

Throughout the year the aircraft carriers *Saratoga, Lexington, Yorktown,* and *Enterprise* were assigned to the Battle Force. The *Ranger* operated in the Atlantic Squadron. On July 1, 1939 the *Wasp* air group was formed at Norfolk and was assigned to the *Wasp* upon commissioning of that vessel in April, 1940. In October, 1939 Patrol Squadron 45 was transferred to Patrol Wing One. In January, 1939 the *George E. Badger,* converted to a seaplane tender, was recommissioned and assigned to Patrol Wing Five. In connection with neutrality operations on the Atlantic coast and in the Caribbean, Patrol Wing Five plus one squadron from Patrol Wing Three was formed as a task group under the Commander, Atlantic Squadron. These aircraft operated from San Juan, Guantanamo, Key West, Charleston, Norfolk, and Newport. Patrol Squadron 21, under the Commander-in-Chief, Asiatic Fleet, operated similarly in the Philippine area. Army Reconnaissance Squadron 21 under the Commandant, Seventh Naval District, operated in connection with neutrality duties from Miami. To provide for the operation of aircraft on neutrality patrol, base facilities have been or are being constructed at Boston, Quonset Point, R.I., Newport, New York, Cape May, Banana River, Fla., Key West, Guantanamo and San Juan. Ship aircraft units were formed for the *Helena, New York, Texas, Arkansas, Erie, Charleston,* and *Noa.*

Flights.—The following special operations, not regularly scheduled, indicate the increased mobility of naval aircraft:

(1) In September, 1939, Patrol Squadron 13, (15 planes) was transferred by air, nonstop, from San Diego to Pearl Harbor, T.H.

(2) In September, 1939, Patrol Squadron 21, (14 planes) was transferred from Pearl Harbor to Manila *via* Midway, Wake and Guam.

(3) In June, Patrol Squadron 14, (6 planes) was transferred from San Diego to Pensacola *via* Panama.

(4) In June, Patrol Squadron 26, (14 planes) was transferred by air from Pearl Harbor to Manila *via* Midway, Wake, and Guam, relieving Patrol Squadron 21 which returned to Pearl Harbor.

The neutrality patrol was organized to operate along the Atlantic seaboard, in the Caribbean, and in the Gulf of Mexico for the purpose of preventing belligerent acts within specified geographical limits. Patrol Wing Five, aided by units of Patrol Wing Three, maintained continuous patrols at sea, and carried out this assignment in all types of weather without incident. The performance of the aircraft attached to the neutrality patrol was considered highly commendable.

Patrol Wing One, based at San

Diego, conducted extensive training both day and night. In June, 1940, Patrol Squadron 14 delivered six of its aircraft to the Naval Air Station, Pensacola *via* Panama, without incident.

Patrol Wing Two, based at Pearl Harbor, carried out extensive advance base operations in the Hawaiian, Midway and Samoan defense area.

Patrol Wing Three, based in the Canal Zone, carried out extensive operations in the Caribbean and Central American waters, and as stated above, furnished units for the neutrality patrol.

Patrol Wing Four, based in the Pacific Northwest, continued operations in that area and in the Gulf of Alaska, gaining valuable experience in cold weather operations.

Patrol Wing Five, based at Norfolk, operated along the East Coast and conducted extensive operations in connection with the neutrality patrol.

Utility Wing, Base Force, operated with the Fleet and furnished invaluable services.

The tactical squadrons of the First Marine Aircraft Group flew from Quantico, Va. to the San Juan-Culebra area and participated in Fleet Landing Exercise No. 6.

The tactical squadrons of the Second Marine Aircraft Group participated in several exercises with the Fleet and conducted carrier qualifications and refresher training from time to time. They also participated in joint Army-Navy exercises.

Naval Reserve Aviation Bases throughout the country continued heavy schedules, including elimination flight training for pilots. Various shore stations carried out numerous experimental and extended flights. More than 600 aircraft were ferried between the East and West Coasts and Pensacola either for overhaul or delivery.

THE ASIATIC FLEET

The Asiatic Fleet was under the command of Admiral Harry E. Yarnell, U. S. N. until July 24, 1939, when he was relieved by Admiral Thomas C. Hart. The ships of the Asiatic Fleet performed their normal functions, visiting northern and southern Chinese ports, carrying out regular training exercises prescribed for naval vessels, and making cruises in the Philippine Islands. Except for the river gunboats, the usual procedure is for the ships to base on Chinese ports in the summer time and the Philippine and southern ports in the winter time. During the summer the destroyers usually operate from Chefoo while the submarines use Tsingtao as their summer base.

SPECIAL SERVICE SQUADRON

The Special Service Squadron consisted of the *Charleston, Erie, Tatnall,* and *J. Fred Talbot,* under the command of Rear Admiral John W. Wilcox. The squadron based on the Panama Canal Zone but made numerous goodwill visits to other countries of Central and South America. Routine training was conducted by this force as prescribed by the operating plans.

SQUADRON FORTY-T

This temporary squadron operated in the waters of southwestern Europe, basing at Lisbon, Portugal instead of southern French ports as in the past two years. The purpose of this unit was to protect the lives and property of American citizens incident to the second World War. Rear Admiral Charles E. Courtney commanded this squadron until June 10, 1940, when he was relieved by Rear Admiral David M. LeBreton.

NAVAL TRANSPORTATION SERVICE

The Naval Transportation Service, maintained for the purpose of caring for the water transportation needs of the naval service, at the beginning of the year consisted of nine vessels. During the course of the year nine additional vessels were assigned to that service. This group of 18 vessels comprised the following types: four transports, four cargo carriers, two ammunition ships and eight oilers.

Two transports, the *Chaumont* and *Henderson,* were employed during the year in regular sailings between both coasts of the United States and the Orient, from the East Coast *via* the Panama Canal and Guantanamo. The vessels carried cabin and troop-class passengers and government freight to the extent of their capacities. The *Chaumont* was extensively altered to improve features affecting safety at sea.

The transport *Wharton* (ex-*Southern Cross*), was acquired from the Maritime Commission. The necessary repairs and alterations were accomplished at a private shipyard and she was put into service the latter part of November, 1940.

The transport *William Ward Burrows* (ex-*Santa Rita*) was acquired from the Grace Lines through the Maritime Commission. Upon completion of conversion work at Norfolk Navy Yard in July, 1940, she was assigned to duty in the Hawaiian area for service including transportation for personnel, supplies, and equipment to the Pacific island bases now under development. Although designated a transport, the *William Ward Burrows* is primarily a cargo ship with limited accommodations for passengers.

The cargo carriers *Capella, Sirius,* and *Vega* were operated between east and west coast ports of the United States, transporting general cargo, naval freight, heavy guns, and other ordnance material. The *Capella,* during the fall of 1939, made the annual voyage to the Pribilof Islands on the mission assigned to the Navy by the President in 1927 of transporting annually personnel and supplies for various government agencies in Alaska, and returning sealskins to the United States. The *Capella* operated under the Commander, Atlantic Squadron, from January to March, 1940, and during that period participated in Fleet Landing Exercise Number Six.

Progress of the development of the Pacific island bases during the first part of the fiscal year indicated the immediate need for a cargo vessel. Accordingly the *Sirius* was diverted to that duty. En route to the Hawaiian area, the *Sirius* carried a full load of contractors' supplies and towed the Army dredge *Holland* and one towboat from San Francisco to Midway Island. That voyage and a similar one by the *Ramapo* was successfully accomplished under particularly adverse weather conditions.

Because of increased demands for cargo transportation resulting from the national emergency, the cargo carrier *Spica* was placed in full commission. The two ammunition vessels *Nitro* and *Pyro* were employed in the transportation of explosive supplies between ammunition depots on the east coast and the Canal Zone, the forces afloat, and shore activities on the west coast of the United States. The recommissioning of the *Pyro* filled an important need for an additional vessel assigned to the duty of transporting explosives. The 250-troop-class passenger capacities of the *Nitro* and *Pyro* were fully utilized on intercoastal voyages effecting substantial savings in the appropriation for transportation of personnel.

The oilers *Ramapo* and *Trinity* were used to transfer petroleum products from Pacific coast ports into storage on the Asiatic station. The *Ramapo,* with a considerable deck load cargo, towed one derrick barge and a small towboat from San Francisco to Midway Island.

Increased requirements for fuel deliveries on the east coast and Asiatic station necessitated the recommissioning of the oilers *Rapidan* and *Sepulga.* All of the oilers in the transportation service operating in the Pacific have rendered valuable assistance during the year, to the Midway development project. On the westward voyages these vessels delivered fuel and supplies to the Army authorities in charge of the dredging operations at Midway Island.

The oiler *Salinas* was employed throughout the year in transporting petroleum products from Gulf ports to the Norfolk area, Melville, R.I., Boston, Charleston, Key West, and

Guantanamo. These fuels are used not only by the Navy but also by other government agencies.

Following the practice adopted during the previous year in the case of the *Cimarron,* the two new oilers, *Neosho* and *Platte,* obtained from the Maritime Commission, were assigned temporarily to the Naval Transportation Service before proceeding to join the Base Force. This assignment enabled the vessels to gain experience in the handling of cargo fuels and were in lieu of shakedown cruises. Both vessels operated on the east coast between storage points located thereon and the Gulf area.

The *Patoka* was recommissioned as an aviation tender but was subsequently redesignated as she was originally designed, an oiler.

NAVAL INTELLIGENCE

The Division of Naval Intelligence continued the work of collecting, evaluating and disseminating information of value to the Navy. This branch administers the duties of naval attaches and naval missions abroad, maintains the public relations and press relations branches, and supervises the Navy Department Library and Historical Records sections.

Offices of naval attaches were continued in the following foreign centers: London, Paris, Rome, Berlin, Tokyo, Peiping, Rio de Janeiro, Buenos Aires, Lima, Santiago, Bogota, Guatemala City, Brussels, Havana, Mexico City, The Hague, and Madrid. New offices were established in Sweden, Venezuela, Turkey, and Dominican Republic.

The public was promptly supplied with all information concerning the Navy and its activities not incompatible with necessary military secrecy.

The Navy Department Library continued its work of classifying and indexing naval records, of publishing historical and naval documents, and assembling pictorial records. During the year the library added 2,890 books and documents, bringing the total to 89,484.

NAVAL COMMUNICATIONS

Shore Radio Stations.—Naval communication operations and material have continued at high efficiency. Studies of important communication problems (military, technical, and industrial) have been conducted in maintaining naval communication personnel and facilities abreast of new applications and new technique. Communication facilities were adequate for the existing naval establishment. Additional facilities will be made available to meet the increased requirements occasioned by the national emergency and the naval expansion program.

Thirty-six naval radio traffic stations were in active commission during the past year. Five such stations have been maintained in an inactive status. A temporary radio station was maintained on Swan Island during the last six months of 1939. This station was established as an emergency measure by the Navy for the use of the Weather Bureau during the hurricane season. The total traffic handled by the Naval Shore Radio System, including relays, during the year is estimated to have been 186,888,846 words. Some 29,848,852 original words were filed with the Naval Communication System for transmission for Government departments and agencies, saving charges which would otherwise have accrued against the Government if naval communication facilities had not been available. About 47 per cent of this traffic was for Government agencies other than the Navy.

Direction Finder Stations.—Twenty-nine radio direction finder stations for navigational aid were in active commission during the year. About 157,000 bearings were furnished on over 77,000 occasions to vessels of all classes, 56,000 to vessels of the American Merchant Marine, 15,000 to foreign vessels, and about 6,000 to United States Naval vessels.

Time Signals.—The Naval Observatory, Washington, D.C., and the Manila Central Observatory broadcast time signals daily through the various naval radio stations. By means of radio control and a crystal clock at Mare Island, the Naval Observatory controls the broadcast of time from naval radio stations at Washington, San Francisco, Oahu, and Balboa. Since several frequencies were simultaneously employed on most of these broadcasts, there was a total of 34,770 time signals transmitted by the Naval Communication Service during the year.

Weather and Hydrographic Information.—Daily broadcasts of weather are made from 24 radio stations. Fifteen stations broadcast bulletins containing hydrographic information daily as requested. Naval radio facilities are also employed to assist the Weather Bureau and Hydrographic Office in collecting information on which their broadcasts are based.

Handling of Commercial Traffic.—The Navy handles commercial traffic only where commercial facilities are not available. This includes emergency messages to and from naval personnel at sea aboard their ships which are relayed from the nearest shore naval radio station. During the fiscal year ended June 30, 1940, there was deposited in the Treasury of the United States to the credit of "Miscellaneous receipts" approximately $34,000 as earnings on commercial messages handled by the Naval Communication Service.

Fleet Communications (Radio).—A high standard of fleet communications has been maintained. Emphasis was placed on limiting all rapid fleet communications to those required for the exercise of command and for urgent naval administration. Radio material installed in ships now in service is adequate to meet all requirements. Continuous consideration is given to the communication requirements for new construction. New ships are equipped with the most modern apparatus available; obsolete equipment in older ships is being replaced.

The number of officers experienced in communications was augmented by those completing technical and practical courses of instruction at the Postgraduate School. The demand for additional officers afloat to man the ships which were recommissioned during the year, necessitated discontinuing the practical course of instruction in communications at the Postgraduate School. A number of volunteers from the Naval Communication Reserve and Fleet Reserve have been ordered to active duty to alleviate the shortage afloat created by the commissioning of new ships and the recommissioning of older ones.

Merchant Vessel Communications.—There has been a distinct improvement in the communications in the merchant marine. Emphasis has been placed upon training merchant marine personnel in visual signalling by semaphore, flaghoist, and flashing light. The Department of Commerce includes questions in the use of International Code of Signals in the examinations for officer's licenses. Cadets receive training in signalling and are used as signalmen at sea. Naval schools and Coast Guard schools are available to licensed merchant marine personnel for training in the International Code of Signals and in International Signal Procedure.

Naval Communication Reserve.—The training of the Naval Communication Reserve made satisfactory progress during the year. A 100 per cent attendance was established by the 30 master and Alternate Control Stations on the Naval Communication Reserve Radio Drill Circuit for the first time since the circuit was established in 1929. Approximately 28 officers and 330 enlisted men of the Naval Communication Reserve have been called to active duty in connection with the increased communication activities of the Navy due to the national emergency. Many more reservists are receiving short periods of communication training duty afloat and ashore.

MARINE CORPS OPERATIONS

The operations of the Marine Corps, as an integral part of the

Navy, have been directed toward an endeavor to maintain adequate and well trained expeditionary forces of all arms ready for instant duty with the Fleet, and at the same time provide reasonable security for naval stations, bases, and depots. Careful and constant study of the needs of the shore establishment has been made with this end in view and with economy of force as the guiding principle. The ability of the Marine Corps to support the Fleet effectively and instantly by offensive and defensive operations has been the main consideration.

Marine detachments were maintained on 57 ships of the Navy including detachments which reported on board the new ships *Helena* and *Wasp*. These detachments included 136 officers and 3,144 enlisted men.

Marine detachments were maintained at the newly organized Naval Air Stations at Jacksonville, Key West, San Juan, Alameda, Tongue Point, Sitka, and Kodiak.

Training and organization of the units of the Fleet Marine Force have continued. In the course of the year the 1st and 2nd Battalions, 15th Marines (mobile anti-aircraft units) were disbanded and the 1st, 2nd, 3rd, and 4th Defense Battalions organized. The 3rd Battalion, 5th Marines, the 8th Marines (less one battalion), and the 1st and 5th Medical Companies were formed.

The Fleet Marine Force has been maintained as nearly as practicable ready for instant service with the Fleet. Naval activities ashore have been supplied with a reasonable increase in personnel for security. Training, equipment, and organization are correlated to the support of the Fleet in defensive and offensive action.

Training of the First Marine Brigade culminated in the participation of this unit with the Atlantic Squadron in Fleet Landing Exercise No. 6 in the Caribbean. Similarly the Second Marine Brigade took part in Landing Operations on San Clemente Island. The Third Defense Battalion was despatched to the Hawaiian area.

The authorized distribution of the Marine Corps personnel on June 30, 1940 was as follows:

Activity	Commissioned Officers	Warrant Officers	Enlisted Men
Fleet Marine Force (exclusive of aviation)	317	23	7,695
Fleet Marine Force Aviation	130	14	1,570
Aviation (exclusive of Fleet Marine Force)	74	2	40
Afloat (Marine Detachments)	136	—	3,144
Foreign Stations	110	20	2,914
Naval Activities in U. S.	114	19	4,161
Marine Corps Activities in U. S. (including schools)	505	67	2,911
Marine Band	—	—	67
Recruits under training, personnel in transit, personnel in hospitals, personnel in temporary detachments, etc.	35	2	2,498
Totals	1,421	147	25,000

IX. DEFENSE AND ARMAMENT

NAVAL CONSTRUCTION AND EQUIPMENT

By Peter Bain

Naval Construction Consultant

DEFENSE ESTIMATES SET PEACE-TIME RECORDS

National defense estimates included in President Roosevelt's budget message to Congress in January 1940 established a peace-time mark in the history of the United States. Later in the year, however, this was several times eclipsed, as the sequel indicates. Of the total, in excess of $2,000,000,000, some $904,000,000 was scheduled for maintenance, strengthening, and operation of the navy. Of the many and varied defense items embodied in that total, naval construction was the chief. This, in turn, embraced new vessel units, reconditioning of combatant craft already in commission, new and modern facilities at navy yards, creation of essential air bases on the mainland, the Atlantic, and the Pacific. In addition, funds were requested in order that, at the beginning of the fiscal year 1941, construction could be started on two capital ships of 45,000 tons each, two light cruisers of 10,000 tons each, one aircraft carrier, eight destroyers of an aggregate tonnage of 12,000, six submarines each to displace about 1,450 tons; in all, about 130,000 tons in combat categories. In non-combat categories, five auxiliaries consisting of seaplane and submarine tenders and one mine sweeper rounded out the program.

In times like these, speed is an important factor in providing an adequate defense both for the nation and its possessions and for maintenance of the Monroe Doctrine. In a word, speed naturally becomes accelerated when ships under contract can be placed in construction yards prepared by experience, equipment, and facilities to accept them. Thus, when Congress wrote into the Supplemental National Defense Appropriation Bill a clause authorizing the Navy Department to negotiate contracts instead of awarding them on the basis of competitive bidding, it made possible the dual outcome of a quicker start and earlier delivery whatever the type of vessel involved. Naval authorities claim too that a saving of millions of dollars to taxpayers can be expected.

Typical of the new construction approach was *The New York Times* June 12 dispatch from Washington which stated that "Within an hour after notification reached the Navy Department that President Roosevelt had signed the $1,308,171,000 Naval Appropriation Bill for the fiscal year 1941, contracts were awarded to shipbuilding companies and allocations made to navy yards for the construction of 22 ships, the completed cost of which will be $362,000,000. This took care of all new naval units provided for in the Act except one aircraft carrier and one tender." In point of number of ships and cost, it was the greatest aggregate of new vessel construction in the history of the United States Navy. Much credit for the record-breaking speed with which the contracts and allocations were made was bestowed by the Navy Department on William S. Knudsen of the National Defense Commission.

THE SHIPS AND THEIR CONSTRUCTORS

The two new capital ships launched at Philadelphia on June 1 (35,000-ton *Washington*) and at New York on June 13 (35,000-ton *North Carolina*) cleared the way for an actual start of construction and increased the number of vessels in that category to 10 for which Congress had made commitments. The ten ships represent a total of 390,000 displacement tons, and each is expected to be equipped with main batteries of nine 16-inch guns.

In addition to the capital ships, four destroyers, three submarines, and four auxiliaries were allocated to navy yards. Two destroyers will be built at the Boston Navy Yard, two at Charleston, S.C., and three submarines at the Portsmouth, N.H. Contracts to private shipyards consisted of two light cruisers to the New York Shipbuilding Corporation, Camden, N.J., two destroyers to the Bath Iron Works, Bath, Me., two destroyers to the Federal Shipbuilding Corporation, Kearny, N.J., and three submarines to the Electric Boat Company, New London, Conn. The new battleships are expected to represent the last word in capital unit construction, embodying as they will lessons of the sea phases of the war, particularly in the direction of added protection against aircraft and submarine attack.

Naturally, the afore-mentioned new construction became additional to an imposing amount then in varying stages of completion. Six capital ships were on the ways. Also building were two aircraft carriers, six light cruisers, about 40 destroyers, 15 submarines, and a number of auxiliaries of diversified type. To maintain and strengthen the defense of the United States, more than $6,000,000,000 have been spent since National Socialism came into power in Germany in 1933, and the race in armament and naval construction became a free-for-all when treaty restrictions lapsed on Dec. 31, 1936.

TWO-OCEAN NAVY

Admiral Harold R. Stark, Chief of Naval Operations, when testifying before a Senate Committee, expressed the opinion that $45,000,000 should be added to the Naval Appropriation Bill for the fiscal year 1941 and that authorization be given to a measure to expand the fleet by 400,000 tons; in a word, by 25 per cent instead of the 10 or 11 per cent then proposed. It was estimated that not only would the added cost amount to $1,500,000,000, but to complete vessels under construction or already authorized would mean a further $2,000,000,000 over a five-year period. The foregoing costs, being based on construction requirements only, were exclusive of the necessary appropriations for maintenance and operation. Even before the French collapse, Admiral Stark warned that this country "must face the possibility of an allied defeat".

In the course of his testimony, Admiral Stark did not overlook the circumstance that German air power had not then crushed British sea power and, 1940 ended with British sea power still dominant. With regard to Japan's current naval construction activities and program, the Admiral made it clear that no reliable information had become available to the United States Navy Department. It was believed, however, that our built and building fleet was still well ahead of Japan in most or all categories. In the matter of superdreadnoughts, reported building by Japan, Admiral Stark said: "We feel reasonably certain that Japan has eight of these battleships actually under way now. There is at the same time some thought that she may have twelve of these ships building or authorized. In addition, she has ten other battleships in commission".

NAVY DEPARTMENT REORGANIZATION

On Feb. 26, the Secretary of the Navy urged before the House Naval Affairs Committee the consolidation of the Bureau of Construction and Repair with that of the Bureau of Engineering, claiming thereby that the move would mean better ships and enhancement of national defense. On March 12, the Secretary, in an order that permits him to distribute the "business of the Navy Department" among the various bureaus, transferred authority for the procurement of armor from the Bureau of Ordnance to the Bureau of Construction and Repair. The move had been suggested to the Committee on Reorganization of the Navy Department which had been conducting hearings for several weeks. Under Admiral Furlong's administration of the Bureau of Ordnance, the capacity for armor production is believed to have been doubled.

Agreement on proposed legislation for the reorganization of the Navy Department was reached at the White House on April 4. Three major changes were outlined as follows: Creation of a Bureau of Ships by the consolidation of the Bureau of Engineering and the Bureau of Construction and Repair; the new agency to be headed by an admiral and an assistant; establishment of an undersecretary to handle problems specifically assigned to him by the Secretary of the Navy; delegation to an Assistant Secretary of the Navy of specific authority to coordinate industrial shore activities.

On June 21, Rear Admiral Samuel M. Robinson, Chief of the Bureau of Engineering, became, under the Navy Reorganization Bill signed June 20 by the President, Chief of the new Bureau of Ships, an office second in importance only to that of Chief of Naval Operations. Rear Admiral Robinson was sworn in on June 26, and Rear Admiral Alexander H. Van Keuren as Chief and Assistant Chief, respectively, of the new Bureau of Ships. Capt. Henry Williams was named administrative assistant. Named for heads of divisions were Capt. E. G. Kintner, maintenance; Capt. C. A. Jones, shipbuilding; Capt. J. M. Irish, design; and Capt. J. A. Furer, general inspector.

THE PRESIDENT'S $1,182,000,000 PROGRAM

Warning grimly that the recent experience of the neutral Low Countries had proved that the United States must be ready with ships and planes and men to attack an aggressor, President Roosevelt called upon Congress on May 16 to enact a $1,182,000,000 program to make this country's defense impregnable to modern warfare. Rarely, if ever before, had the President received such an ovation as that which greeted his appearance before the joint session of Congress.

Legislative leaders on both sides of the Capitol before the day's close had perfected plans for completing Congressional action on President Roosevelt's proposals. On May 28, the House adopted and sent to the Senate two Administration measures designed to expedite naval construction and expand the fleet's air arm; the first step, as the Naval Affairs Committee stated, being towards providing the United States with sea strength "based on the possibility of a war on either the Atlantic or Pacific, or a simultaneous war on both oceans such as the future can and may bring." The Ship Construction Bill was passed by 400 votes to 1 and the Aviation Expansion Bill by 402 to 1.

Reports from the Naval Affairs Committee recommending the bills took a grave view of the nation's military position and its potential dangers. The air expansion program outlined by the House authorized the Navy to maintain 10,000 useful planes and 16,000 pilots, together with 48 lighter-than-air craft. Land bases and training stations at a cost limited to $144,132,000 would be acquired or improved at specified strategical points. The bill to expedite construction of the vessels then on the ways was intended "to cut red tape and get down to business and build ships", according to the explanation of Representative Vinson, chairman of the Committee. The measure would suspend for three years certain restrictive legislation which, Navy representatives testified, tended to slow down construction. The bill would permit the Secretary of the Navy, when authorized by the President, to negotiate contracts without advertising for bids and to advance to contractors 50 per cent of the contract price immediately.

The measure also would authorize the Secretary of the Navy to waive the existent recapture of profits in excess of 10 per cent on ships and 12 per cent on airplanes on contracts not in excess of $25,000 per unit. He would be permitted to determine what proportion of the cost of equipment, such as machine tools, supplied by the Government, should be allocated against each contract, a function hitherto performed by the Secretary of the Treasury. The work week of those engaged on vessel construction or other naval defense activities would be increased from 40 to 48 hours, with time and a half for service in excess of eight hours a day or 40 hours a week. Overtime payment would be authorized to government employees receiving an annual salary, whereas it was then permitted only to workers on a per-day basis.

As the anticipated sequel to the President's message, developments of one description or another bearing on national defense appeared in rapid succession. Among the more minor of these, although by no means unimportant, was a bill authorizing the Secretary of War and the Secretary of the Navy to assist the 20 American republics in adding to their military establishments. This measure, approved by the House on July 29, 1939 and by the Senate on May 28, permits the manufacture in factories and arsenals of the United States of coast defense and anti-aircraft ordnance, ammunition, ships, and armaments generally, provided the defense program of this country is not hindered.

On May 30, Congress became aware that a substantial part of the Navy's share of emergency defense funds would go to protect 24 of our principal harbors from submarine attack and for the purchase of a new type of cannon. The information became available with publication of testimony of naval officers during Committee hearings on the $1,302,000,000 Naval Supply Bill. For anti-submarine nets, $27,500,000 was sought. An additional $8,000,000 was asked for the acquisition of 20 special type boats to serve as net tenders. The harbors were not identified. In response to the Navy's efforts to speed war vessel building, on May 31 the Bath Iron Works of Bath, Me. and the Federal Shipbuilding and Dry Dock Co. of Kearny, N.J., bidding on four 1,630-ton destroyers, offered to complete them in 18 months instead of 24 months, the existent and shortest construction time under then current contracts.

THE DEFENSE GOAL

On June 11, the House Appropriations Committee recommended an additional $1,706,053,908 outlay for national defense. The bill, submitted the day after Italy's entrance into the war, increased the defense appropriations for the current session of Congress to $5,021,619,622 and, among other provisions, would permit the Navy to start work on 68 more war craft. The Bill carried $504,963,170 of appropriations and $63,560,000 of authorizations. The principal naval items, in addition to 68 new combat ships, provided funds to recommission 35 destroyers and 36 submarines, thereby placing all existent combat tonnage in operation. Other details consisted of $61,437,400 to complete the manufacture of 400 new quadruple mounts and anti-aircraft guns; an increase of the anti-aircraft defenses of all battleships, cruisers, and aircraft carriers at a cost of $8,360,000; the acquisition of three Maritime Commission vessels to be converted to naval service and costing $6,000,000; and a far-flung system of naval air bases ringing the United States at an expenditure of $60,300,000. The 68 new combat craft included three aircraft carriers, 13 cruisers, 30 destroyers, and 22 submarines.

On June 14, President Roosevelt gave the names *Missouri* and *Wisconsin* to the two 45,000-ton capital ships on which construction had been ordered a few days previously. Names were assigned at the same time to 22 other combat ships and auxiliaries whose keels were soon to be laid. The *Missouri* is to be built at the New York Navy Yard. The *Wisconsin,* second of the name, will be built at the Philadelphia Navy Yard. The selections were recommended by the Navy Department. The two 10,000-

ton light cruisers were named *Montpelier* and *Denver,* and a new aircraft carrier, the *Essex,* perpetuating the names of three historic war vessels. A submarine tender was named *Sperry* in honor of the engineer and inventor. The United States Government moved swiftly on June 17 to bar economic or military encroachment in the Western Hemisphere by the totalitarian countries. President Roosevelt projected a great economic union between North and South America, to which end, identical bills were introduced in both Houses of Congress calling for expansion of the Navy by 84 more ships at a cost of $1,200,000,000.

NEW DEFENSE PEAK

Admiral Stark's recommendation to the House Naval Affairs Committee on June 18 that the Navy be increased by about 1,250,000 tons caught official Washington generally and the country at large wholly unprepared for any such new defense development, notwithstanding that the project of a two-ocean navy had been widely and freely discussed for a good many months. Equally surprising, however, was the circumstance that the $4,000,000,000 recommendation for naval expansion, designed to give this nation a navy adequate to defend its coasts as well as its territorial possessions, should by unanimous vote and action of the Committee be sent in the form of a bill for consideration by the House within a few hours of Admiral Stark's presentment.

In approving the program, which would involve a 70 per cent increase in our sea strength, the Committee scrapped a bill which Representative Vinson introduced the day before. The latter would have authorized a 24 per cent naval expansion at a cost of $1,200,000,000. Preferring to deal in total tonnages, the Admiral indicated to the Committee that the proposed additions by 1946 of an estimated total of 1,325,000 tons would provide the Navy with about 200 more combat ships distributed among the following categories: Capital ships, 385,000 tons; airplane carriers, 200,000 tons; cruisers, 420,000 tons; destroyers, 250,000 tons; and submarines, 70,000 tons. In addition, he recommended that $25,000,000 be spent on small patrol craft, discretion as to types to be left to the Secretary of the Navy.

The Navy's abrupt change of front was one of several indications that the collapse of France had shocked Washington and that plans for the naval, military and economic defense of the Western Hemisphere would be promptly recast. Where the 385,000 tons of capital ships will be built poses a problem yet to be solved. The New York, Philadelphia, and Norfolk navy yards, although equiped for the purpose, have no vacant construction ways. Expectation, therefore, indicated that not only at all three of these government yards but at the Bethlehem yard at Quincy, Mass., the New York Shipbuilding Corporation yard at Camden, N. J., and the Newport News Dry Dock and Shipbuilding Co. yard at Newport News, Va., would a program of building ways expansion be inaugurated at the earliest possible moment. The possibility was indicated, too, that equipment and facilities might be installed at the Puget Sound Navy Yard, and that complete new plants might be installed in the country where tidewater of launching depth is available.

While the problem of constructing the aircraft carriers, the cruisers, and destroyers appeared less difficult of solution, it nevertheless called for a substantial expansion program of equipment and associated facilities by way of satisfactory solution. It was the opinion of Admiral Stark and the heads of the construction and engineering departments of the Navy that the necessary degree of expansion of plant, equipment, and facilities, could be achieved in a reasonably short time. No indication was given however, of the probable cost involved in setting up the complete expansion requirements.

START OF NEW BUILDING PROGRAM

In a supplemental defense appropriation bill signed by President Roosevelt on June 27, there was carried an appropriation of $144,000,000 for construction and machinery of vessels previously authorized as well as for starting work on three new aircraft carriers, 13 cruisers, 30 destroyers, and 22 submarines. An additional $78,400,000 was set aside for armor, armament, and ammunition for new ships. On June 27, the keel of the 45,000-ton battleship *Iowa* was laid without ceremony at the New York Navy Yard in Brooklyn. Two world war destroyers were converted into seaplane tenders and two into light transports. Of length 314 feet overall, the *Goldsborough* was altered for the most part to provide new quarters for aviation personnel and to install additional fuel tanks for sea serviceing of naval sea planes. Another destroyer, the *Clemson,* also converted into a seaplane tender, was due for recommissioning a few days later. Two other old destroyers, the *Gregory* and the *Little,* being converted into light transports, were due for recommissioning later in the year.

On July 1, President Roosevelt signed the bill to speed up naval construction by authorizing the Navy Department to negotiate building contracts without competitive bidding and advance 30 per cent of the contract price for plant expansion in private shipyards. Within a few hours on the same day, contracts for the building of 44 combat and one non-combat vessels were awarded, costing around $550,000,000. All of the contracts involved went to privately owned shipyards. Cruisers, destroyers, submarines, and one seaplane tender allocated in the day's awards, left three aircraft carriers, and two cruisers still to be placed. These five vessels were contracted for on July 3 for $169,531,000 exclusive of armor, armament, and ammunition. The vessels were authorized under the Vinson 11 per cent expansion bill.

At the Navy Department on July 3, the final units in its latest and greatest construction program were contracted for in pursuance of the 11 per cent expansion authorized. The ships involved consisted of three aircraft carriers and two cruisers of a combined cost of $169,531,000, exclusive of armor, armament, and ammunition. All five vessels were awarded to the Newport News Shipbuilding and Dry Dock Co. of Newport News, Va. The aircraft carriers will each be of 26,000 tons and $43,662,000 individual cost. The two cruisers will be of 10,000 tons each and of $19,272,000 individual cost.

Legislative action was completed on July 11 relative to the Two-Ocean Navy Bill, and President Roosevelt signed the $4,000,000,000 bill on July 20. The Navy Department lost no time in announcing that it would request $178,000,000 for fleet increases. This sum was wanted to lay down immediately keels for 109,300 tons of combat ships. On July 31, the House passed and sent to the Senate the Supplemental National Defense Appropriation Bill, amounting to $4,963,151,957 in cash and contract authorizations, as a still further intensification of the current rearmament drive. The bill as sent to the Senate brought the amount so far voted by the House for naval defense purposes in the 1941 fiscal year to $2,439,377,748 in cash and $790,985,612 in contractual authority. To the Navy, the bill alloted $574,926,540 in cash and $483,230 in contract authorizations. In broad outline, and relative to the Navy, the measure provided the funds necessary to place 200 additional combat ships on the ways, thereby increasing to 355 the total of ships authorized in the 1941 fiscal year. Also included in the bill were $40,750,000 in cash and $35,000,000 in contract authorizations for expansion of naval shore establishments.

After receiving assurances that contracts for 200 combat ships would be placed soon after, President Roosevelt on Sept. 9 signed the $5,246,000,000 Supplemental Defense Appropriation Bill, largest peacetime measure in American history. While the work involved in a multiplicity of directions can not be done with the like haste by which contracts are negotiated, the bill in one specific direction constitutes the initial step toward the goal of procuring a two-ocean navy by 1947 at the latest and, maybe, within five years. During discussion of the bill in Congress and previously, the Navy Department had conducted and completed an exhaustive survey of all shipbuilding facilities available to construct war craft whether in private or navy yards. Actually, it seems, that preliminary negotiations had been entered into and completed on a tentative basis for construction of every combatant ship provided to increase the Navy by 70 per cent. Due to these efforts, the Navy Department was ready immediately the bill was signed to allocate to Navy Yards and award contracts for the construction of all combatant ships included in the authorization bill, and to award contracts for ordnance, aircraft, accessories, and public works, to a grand total of more than $3,700,000,000.

It may be taken for granted that this new construction program will call for expansion of our shipbuilding industry to a capacity hitherto unknown. Navy yard expansion is estimated to cost around $32,000,000, and while no figures are available concerning private shipyards, it may well be assumed that the cost there will, at least, equal that of the Navy Yards. As approved by the President and the Navy Department, the bill calls for the construction of seven capital ships, eight aircraft carriers, 27 cruisers, 115 destroyers, 43 submarines, and one repair ship. Combatant ships carried in the Bill raises the tonnage of those in commission, building and under contract to 3,049,480.

CONTRACTS AND ALLOCATIONS FOR NEW CONSTRUCTION

The number of units involved in each contract or allocation follow: four aircraft carriers and two cruisers —Newport News Shipbuilding and Dry Dock Co.; four aircraft carriers and six cruisers—Bethlehem Steel Co. (Fore River) Quincy, Mass.; four cruisers and 18 destroyers—Bethlehem Steel Co., (Union plant), San Francisco; six destroyers—Bethlehem Steel Co. (San Pedro plant), Los Angeles; ten destroyers—Bethlehem Steel Co. (Staten Island), New York; ten cruisers—New York Shipbuilding Corporation, Camden, N.J., five cruisers and 17 destroyers—Federal Shipbuilding and Dry Dock Co., Kearny, N.J.; 20 destroyers—Seattle-Tacoma Shipbuilding Co., Seattle, Wash.; 12 destroyers—Consolidated Steel Corporation Ltd., Orange, Tex.; 11 destroyers—Bath Iron Works Corporation, Bath, Me.; 25 submarines—Electric Boat Co., Groton, Conn.; ten submarines—Manitowoc Shipbuilding Co., Manitowoc, Wis.; one repair ship—Los Angeles Shipbuilding and Dry Dock Co., Los Angeles, Cal.; four destroyers—Gulf Shipbuilding Corporation, Chickasaw, Ala.; two capital ships—New York Navy Yard; three capital ships—Philadelphia Navy Yard; two capital ships—Norfolk Navy Yard; six destroyers—Boston Navy Yard; five destroyers—Charleston Navy Yard; six destroyers—Puget Sound Navy Yard; six submarines—Portsmouth Navy Yard; two submarines—Mare Island Navy Yard.

Appropriations in the Second Supplemental National Defense Appropriation Act provide funds for starting construction of "109,000 tons of combatant vessels authorized by the Act of March 27, 1934; eight auxiliary vessels authorized by the Act approved May 17, 1938; 75,000 tons of auxiliary vessels authorized by the Act approved June 14, 1940; and 1,325,000 tons of combatant vessels together with 100,000 tons of auxiliary and patrol craft authorized by the Act approved July 19, 1940." Each aircraft carrier will displace some 25,000 tons and cost around $57,000,000.

Chairman Vinson, of the House Naval Committee, announced on Sept. 9 that the seven new capital ships, costing around $100,000,000 each, would be of the 45,000-ton class. This makes a total of nine 45,000-ton and eight 35,000-ton battleships now under contract, the last seven awarded to navy yards—three to Philadelphia, two to New York and two to Norfolk. By December 1944, the major portion of the program was expected to be completed, aside from the battleships which probably would require a year or more longer before placing in commission. Dedicated to "the preservation of peace in our hemisphere," the 45,000-ton battleship *New Jersey* began to take shape on Sept. 16 at the Philadelphia Navy Yard with the welding of two sections of its keel by Charles Edison, former Secretary of the Navy.

With all major defense legislation apparently disposed of for the current session of Congress, the total of defense funds voted came to about $12,150,000,000. The figure does not include a $4,000,000,000 naval expansion measure, then merely an authorization. Notwithstanding, funds were voted to begin work on the fleet expansion. Because of the circumstance that disposal of a number of units of the United States fleet were involved, reference is made in passing to President Roosevelt's informing of Congress on Sept. 3 that he had completed an arrangement by which the United States would transfer to Great Britain 50 over-age destroyers and obtain in return 99-year leases for sea and air bases at eight strategic continental and island points in the Western Hemisphere. The 50 destroyers had been certified by Admiral Stark, Chief of Naval Operations, as not essential to our defense.

MISCELLANEOUS PLANT EXPANSION

On Oct. 9, Secretary of the Navy Knox disclosed plans for the immediate strengthening of the Fleet, both in men and ships. It was indicated that the Navy had already acquired 22 of the 53 merchant vessels for its use as Fleet training auxiliaries, for which $75,000,000 had been made available. Expectations were that the remaining 31 would soon be purchased. Announcement was made that contracts totalling $96,961,146 had been let for construction of shipbuilding slips, wharves, shipbuilding tools, and other equipment, by way of accelerating the naval expansion program.

Secretary Knox revealed on Oct. 23 that the Navy Department was taking steps to increase the output of armor plate for its two-ocean program. Armor making plant facilities necessarily had to be greatly increased to meet present requirements. Bids were to have been opened on the above date for construction of two mine-layers but none was received. They were expected to cost about $8,000,000 each. It was the first time in many years that the Navy Department had failed to obtain bids on ships by way of competition. Secretary Knox further revealed that naval construction in both government and private yards was well ahead of schedule.

Acquisition of nine new high-speed oil tankers to extend the Fleet's effective radius as far as the Philippines was announced Oct. 30 by the Navy Department. These vessels of 18 knots speed had been built for commercial oil concerns but, to provide them with a potential emergency service value, Navy and Maritime Commission specifications had been incorporated in their construction. By this transaction the Navy came into possession of all 12 of the *Cimarron* class of fuel ships built and commissioned for the overseas service of the Standard Oil Co. of New Jersey. Three of the units had previously been acquired. Every unit in the Maritime Commission's merchant fleet built and building now incorporates to a greater or lesser degree such naval specifications as makes it readily convertible into a Fleet auxiliary; in a word, and as may be, it becomes quickly adaptable to such categories as oiler, supply ship, repair ship, transport, submarine or airplane tender, hospital or ammunition ship, etc.

In the period from July 1 up until the beginning of November, the Navy Department had acquired 112 merchant craft for the Fleet Train, as the auxiliaries are so designated in naval parlance, practically all of which came from or with the cooperation of the Maritime Commission. Other vessels acquired were, for the most part, small units privately owned—tugs, trawlers, and yachts, the latter large, small, speedy, and palatial—to be employed chiefly in harbor protection as mine sweepers, submarine chasers, and patrol boats. For fuel supply service, the Maritime Commission had under construction and at varying stages of completion 11 up-to-date tankers, each of which had incorporated naval specification requirements; also about 30 modern cargo carriers designed for speedy conversion into ammunition, supply or other service incidental to Fleet activity.

AIR DEFENSES

An Associated Press dispatch from Washington to *The New York Times* on Dec. 7 disclosed that the Navy, as the result of lessons learned from the war in Europe, sought to spend about $300,000,000 for major improvements in the anti-aircraft defenses of its combatant ships. A letter was sent to the House Naval Affairs Committee by Secretary Knox asking authorization of the funds. Details of the proposed improvements were declared to be confidential. Admiral Stark, Chief of Naval Operations, while insisting that the existent anti-aircraft defenses of the Fleet were good, took the precaution to add in a concurrent statement that "the whole program was designed to have our ships not only abreast of requirements but ahead of them."

It was estimated that from five to six years would be required to complete the proposed alterations on ships already in the Fleet. This apparently long time is due to present heavy work load in the plants and also to times the different ships can be made available for the alterations without interfering too seriously with the work of the Fleet. Presumably, the improvements would also be a feature of ships under and scheduled for construction. That the subject had been under consideration by the Navy Department for some time was indicated in a statement by an aide to Secretary Knox on July 17, to the effect that all units of the United States Fleet were being re-equipped with modern anti-aircraft weapons and that already installations had been completed on 53 vessels, with work well advanced on others. The Secretary himself declared that the best defense against aircraft is aircraft, although other means are effective. Further, he recalled that his predecessor had disclosed several months previously that the Navy Department was giving serious thought to the redesigning of war vessels in order to make them less vulnerable to attack from the air.

Although details of the latest proposed improvements were withheld because of a desire to present them to Congress when hearings start on the necessary legislation, it was believed that changes discussed had included doubling the number of guns in each ship's anti-aircraft batteries and provision of greatly increased stores of the necessary ammunition. Legislation to authorize the project becomes necessary because existing law limits to $450,000 the amount that can be spent for alteration and repair on any individual vessel during an 18-month period. The proposed improvements are in essence the recommendation of a Navy Department board headed by Rear Admiral King.

DEFENSE EXPANSION

The international situation, according to the annual report of Acting Secretary of the Navy, Lewis Compton, for the fiscal year ended June 30, 1940, is such that we must arm as rapidly as possible to meet our national defense requirements simultaneously in both the Atlantic and Pacific Oceans against any possible combination of powers concerting action against us. Our aim must always be to have forces sufficient to enable us to have complete freedom of action in either ocean while retaining forces in the other ocean for effective defense of our vital security. Anything less than this strength is hazardous to the security of the nation and must be considered as unacceptable as long as it is within our power to produce and man the forces necessary to meet these requirements.

Admiral H. R. Stark, Chief of Naval Operations, in his annual report for the fiscal year 1940, noted at the outset that we were faced with the demonstrated fact that force is now the only safe insurance of national survival. Unpreparedness suddenly cost the independence of 13 nations abroad. The manifest threat against the future security of this hemisphere has aroused the people of the United States. Practical efforts are being made to augment the present strength of our armed forces so as to meet any eventuality. In June 1940, the Congress granted the Navy an 11 per cent increase in combat strength and, in July, a further increase of approximately 70 per cent. When these ships and aircraft are completed, the United States Navy in under-age and over-age vessels will include 32 battleships, 18 aircraft carriers, 91 cruisers, 325 destroyers, 185 submarines, and 15,000 airplanes. Congress has also provided for suitable increases in the number of the Navy's auxiliary vessels to furnish the train required to support these fighting ships.

After defining naval power as "ships, aircraft, bases and men," Admiral Stark made the pointed statement that "it does not suffice to add ships and aircraft to increase the strength of our Navy unless there are trained men and officers to man these ships and planes. Years are required for this training." The Procurement Planning Section of the Fleet Maintenance Division has continued to supervise and coordinate the preparation of contributory war plans and the estimates of material requirements. Reserve material planning has been continued. The Naval Shore Establishment has been considerably increased as a result of the general expansion program, both by the increase in the size and facilities of existing shore activities and by the addition of new shore activities. Progress has been satisfactory on the construction of additional air bases and aviation shore activities authorized and appropriated for as a result of the Hepburn Board's recommendations. Further authorizations and appropriations to carry out the remainder of the Board's recommendations are under consideration. Incidental to the national emergency and the necessity for provision of various types of naval district patrol craft, numerous adjustments and re-allocations of the vessels previously designated for naval reserve training activities have been effected. It is noted that most of the patrol type vessels at present assigned to training of the Naval Reserve are obsolescent and in many cases inadequate. These vessels will be replaced as opportunity offers.

BUREAU OF SHIPS

Total expenditures for all purposes during the fiscal year 1940 were approximately $323,026,765 as compared with $210,146,339 expended by the Bureau of Construction and Repair and the Bureau of Engineering during the fiscal year 1939. There were under construction on June 30, 1940, 138 vessels. Seventy of these were building in private shipyards and 68 in navy yards. In their respective categories, there were ten battleships, two aircraft carriers, eight light cruisers, 41 destroyers, 28 submarines, one mine layer, three mine sweepers, three submarine chasers, 17 motor torpedo boats, 12 motor boat submarine chasers, one destroyer tender, one repair ship, two submarine tenders, two large seaplane tenders, six small submarine tenders, and one catapult lighter.

Of 105 vessels under construction on July 1, 1939, 18 were delivered to the Government prior to July 1, 1940. The deliveries included one aircraft carrier, six destroyers, four submarines, one submarine chaser, two motor torpedo boats, one destroyer tender, and three ocean-going tugs. Of 17 vessels built in navy yards and completed during the period July 1, 1939 to June 30, 1940, one was a light cruiser, 13 were destroyers, and three were submarines.

On March 4, 1940 contracts were awarded to the New York Shipbuilding Corporation, Camden, N.J. for two 10,000-ton light cruisers, the *Columbus* and *Cleveland,* each being of the same general type as nine already in service. These were the last of 24 combat craft and auxiliaries for which Congress had previously provided initial funds. During the year an unusually large volume of new design work was carried to completion and further new designs initiated. With regard to improvement of the Fleet, only a small percentage of the alterations in the Material Improvement Plan were accomplished because of the limited funds available. The Fleet has been maintained in a satisfactory material condition by the accomplishment of all essential repairs.

BUREAU OF YARDS AND DOCKS

In his report on the activities of the Bureau of Yards and Docks, Admiral Moreell declared that during the fiscal year 1940 his department had expended $81,864,734 as compared with $48,089,574 in 1939 and $14,761,018 in 1938. In addition, during the fiscal year 1940, contracts for 688 projects were awarded of a total of $183,762,017. The previous maximum record was in 1918 when contract awards amounted to $89,092,725. Building and repair facilities have been increased in all naval establishments, the report further noted. Several dry docks have been constructed or are in process, while existing dry docks have been generally improved. New shipways have been constructed at various points and not a few others have been lengthened or strengthened. Piers and quay walls have been extended in a number of locations to provide larger docking space. Industrial facilities have been increased at all locations.

BUREAU OF SUPPLIES AND ACCOUNTS

The report by Rear Admiral Ray Spear, Chief of the Bureau of Supplies and Accounts discussed in more or less extensive detail the more important handicaps encountered by his department in the effort to procure supplies. Cited among the handicaps were the Walsh-Healey Act and minimum wage codes as restricting the letting of contracts and limitations on industrial profits and the excess profit taxes, all of which were asserted to be retarding construction of new industrial facilities to meet defense needs. Despite the handicaps indicated, Admiral Spear reported acceleration of the shipbuilding and aircraft programs, placing the money value of purchases made by the Bureau at $243,108,984, an increase of 60 per cent over 1939.

PANAMA CANAL LOCKS

Despite the more or less extraordinary defense measures hitherto taken and that still further may be taken to safeguard the Panama Canal, particularly its locks, and in view of its primal importance to the United States Navy as a rapid transit medium for its Fleet between the Atlantic and Pacific Oceans, Congress agreed that work should start immediately upon a third set of locks, to which end, President Roosevelt on June 24, signed the $222,718,717 War Department Civil Functions Bill which includes $15,000,000 in cash and $99,000,000 in contract authorizations. Plans of the War Department call for bombproof construction. The ultimate cost is expected to be about $277,000,000. Specifications for bids on the dry excavation of the new Gatun Locks, involving the removal of nearly 12,000,000, cubic yards of dirt, were dispatched by air mail to contractors throughout the United States on Oct. 9. Bids were opened in Washington on Dec. 4. Five in all were received, the low bid being $8,517,100 submitted by the Martin Wunderlich Company of Jefferson City, Mo. jointly with the Okes Construction Company of St. Paul, Minn.

In what way the proposed locks will be made bombproof is a military secret. It is understood, however, that they will be 1,200 feet by 140 feet, whereas existing locks are 1,000 feet by 110 feet, and therefore will permit transit of large ships. The proposed set of locks will in large degree constitute a separate canal, roughly paralleling the present set of locks at a distance of about a mile and a half. Original estimates called for completion in six years but it is now hoped to shorten that time by 12 or 18 months because of the strained international situation.

REOPENING OF CRAMP SHIPYARD

Navy Department authorization was received on Oct. 30 by the Cramp Shipbuilding Company of Philadelphia to begin spending $10,000,000 for restoration of its plant for national defense work. On Nov. 29, a contract for the construction of six cruisers at an estimated cost of $113,822,280 and for expansion of plant facilities to cost from $9,500,000 to $12,000,000 was let to this old established concern which for more than a year has been seeking rehabilitation. Funds for the Cramp contract were embodied in the Second Supplemental Defense Appropriation Act.

HUGE "MOSQUITO" FLEET TO BE CREATED

On Aug. 26, an Associated Press dispatch from Washington announced that Senator Wiley of Wisconsin had made public a letter from Secretary of the Navy Knox, outlining plans to contract for a fleet of "mosquito" vessels—torpedo boats, patrol craft and submarine chasers—with a view to rounding out the defense program already in being and substance. The letter disclosed that more than 30 of this type of boats were under contract, embracing a variety of designs, and that several had reached the delivery stage. As early as possible, all were to be assembled for competitive tests to the end that selections could be made of those best adapted for naval defense purposes. Thereafter, the Navy would enter the market for production of an undisclosed number of the chosen designs, with speedy deliveries an important consideration. It was indicated that many plants in our small boat industry were well qualified to build this "mosquito" fleet—those along the coasts, the Great Lakes, navigable inland waterways, and even inland where transportation to a navigable stream is overland. Construction bids will be sought through the medium of public advertisement. The motor torpedo boats will probably have wood hulls, with the possibility that some hulls will be of aluminum. The 170-foot patrol craft will embody much steel as a construction element, as will also the 110-foot sub-chasers, although wood as well as steel, or both, may be employed.

NAVAL VESSEL LAUNCHINGS AND COMMISSIONINGS

An unusually large number of destroyers and submarines through their launching during 1940 gave evidence that construction in these categories was making rapid progress toward completion. Coincidentally, commissionings also were well above normal. In other categories and additional to the launching of the 35,000-ton battleships *Washington* at Philadelphia, and *North Carolina* at New York, the 8,300-ton seaplane tender *Albemarle,* a "floating garage," slid down the ways at the Camden yard of the New York Shipbuilding Corporation on July 13. A sister ship of the *Curtiss,* launched from the same yard on April 20, the *Albemarle* will carry oil, gas, and spare parts for seaplanes, as well as mechanics for repair service. A few minutes before the Albemarle was launched, workmen laid the keel of the 10,000-ton light cruiser *Cleveland,* and, almost immediately after, the newly completed 10,000-ton destroyer tender *Prairie* started on a builder's trial run to the Delaware Capes.

On Dec. 14, the aircraft carrier *Hornet* was launched at Newport News, Va. Contracted for in March 1939, the vessel became the fourth in its category to be built by the Newport News Shipbuilding and Dry Dock Co., the others being the *Ranger, Yorktown,* and *Enterprise.* The *Hornet's* capacity is about 83 combat planes. Also on Dec. 14, launching of the Navy's newest repair ship *Vulcan* took place. This vessel, only slightly smaller than a cruiser, was made ready for launching in something more than a year from the date of signing the construction contract on Aug. 1, 1939. Its keel was laid by the New York Shipbuilding Corporation, on Dec. 26, 1939.

For account of the United States Navy, the Maritime Commission on Dec. 13, 1940, invited bids to be opened for the construction of five twin-screw, Diesel-propelled gasoline tankers. Each will be of 309 feet 6 inches overall length, with a designed speed of 14 knots and of approximately 2,300 deadweight tons. Bids opened on Jan. 9, 1941.

CONTRACTS FOR 40 MORE DESTROYERS

Secretary of the Navy Knox revealed on Dec. 17 that contracts calling for the construction as promptly as possible of 40 more destroyers than hitherto contemplated had been signed by the Navy Department. Their aggregate cost will run to $253,384,875, or an average for each of $6,300,000. They are expected to embody the latest developments in destroyer design, construction, and combat efficiency. Through the inclusion of $8,300,000 which the Navy Department made available to private contractors to finance necessary expansion of their shipbuilding facilities, the grand total of the contracts was increased to $261,684,875. All contracts were cleared through the National Defense Advisory Commission. Appropriations remaining from previous authorizations by Congress were understood to have made possible this new addition to the Fleet. Seven more destroyers were included in the day's contract letting, as well as two cruisers, the previous contracts for which had been cancelled and reallocated to other shipyards better equipped to give speedy deliveries.

Concurrent with announcement of the placing of the contracts, the Navy Department issued a table setting forth the strength of the Navy in combatant craft afloat and building. The table omitted over-age destroyers transferred to Great Britain and 45 other over-age vessels of that category converted to special types for other naval services. Combat strength of the Navy detailed in the table showed:

Type	Under Age	Over Age	Building	Total
Battleships.....	12	3	17	32
Aircraft Carriers	6	0	12	18
Cruisers........	35	2	54	91
Destroyers.....	85	74	206	365
Submarines.....	36	68	81	185
Total..........	174	147	370	691

PERIODICAL PUBLICATIONS

Army and Navy Journal
1701 Connecticut Ave. N.W., Washington, D.C.

Army and Navy Register
511 Eleventh Street N.W., Washington, D.C.

Army Ordinance
806 Mills Building, Washington, D.C.

Cavalry Journal
1624 H Street N.W., Washington, D.C.

Coast Artillery Journal
1115 Seventeenth Street N.W., Washington, D.C.

Field Artillery Journal
1624 H Street N.W., Washington, D.C.

Infantry Journal
1115 Seventeenth Street N.W., Washington, D.C.

Marine Corps Gazette
United States Marine Corps, Washington, D.C.

Military Engineer
808 Mills Building, Washington, D.C.

Quartermaster Review
923 Fifteenth Street N.W., Washington, D.C.

U.S. Coast Guard Magazine
462 Indiana Ave. N.W., Washington, D.C.

U.S. Navy Magazine
Ocean Center Bldg., Long Beach, Calif.

Waterways Journal
1605 Chemical Building, St. Louis, Mo.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

SERVICE SOCIETIES

American Legion, The, National Headquarters, 777 N. Meridian St., Indianapolis, Ind.

American Remount Assn., 810 18th St., N.W., Washington, D.C.

American Society of Naval Engineers, Bureau of Engineers, Navy Department, Washington, D.C.

Army Ordnance Assn., Mills Bldg., 17th St. and Pennsylvania Ave., Washington, D.C.

Association of Military Surgeons of the United States, Army Medical Museum, Washington, D.C.

Chemical Warfare Service, Edgewood Arsenal, Maryland.

Navy League of the United States, Inc., Mills Bldg., Washington, D.C.

Quartermasters' Assn. of the United States, 923 15th St., N.W., Washington, D.C.

Reserve Officers' Assn. of the United States, 1726 Pennsylvania Ave., N.W., Washington, D.C.

Society of American Military Engineers, 808 Mills Bldg., Washington, D.C.

Society of Naval Architects & Marine Engineers, 29 W. 39th St., New York City.

United States Cavalry Assn., 1624 H St., N.W., Washington, D.C.

United States Field Artillery Assn., 1624 H St., N.W., Washington, D.C.

United States Infantry Assn., 1115 17th St., N. W., Washington, D.C.

United States Naval Institute, Annapolis, Md.

PATRIOTIC AND HEREDITARY

Colonial Dames of America, 421 E. 61st St., New York City.

Daughters of 1812, National Society, U. S., 1461 Rhode Island Ave., N.W., Washington, D.C.

Founders and Patriots of America, Fifth Ave. and 59th St., New York City.

General Society of Colonial Wars, 196 N. Beacon St., Hartford, Conn.

General Society of Mayflower Descendants, 420 Lexington Ave., New York City.

Military Order of Foreign Wars of the U.S., 15 Broad St., New York City.

Military Order of the Loyal Legion of the U. S., 4 W. 43d St., New York City.

Military Order of the World War, 1700 Eye St., N.W., Washington, D.C.

National Security League, 45 W. 45th St., New York City.

National Society of the Daughters of the American Revolution, Memorial Continental Hall, Washington, D.C.

National Society of the Sons of the American Revolution, 1227 16th St., N.W., Washington, D.C.

Naval and Military Order, Spanish-American War Veterans, 184 State House, Boston, Mass.

Pilgrim Society, Pilgrim Hall, Court St., Plymouth, Mass.

Society of the Cincinnati, Inc., 2118 Massachusetts Ave., Washington, D.C.

Sons of Confederate Veterans, 609 Law Bldg., Richmond, Va.

Sons of Union Veterans of the Civil War, 2225 Municipal Bldg., New York City.

United Confederate Veterans, 1528 Lowerline St., New Orleans, La.

United Spanish War Veterans, Inc., 40 G St., N.E., Washington, D.C.

Veterans of Foreign Wars of the U.S., Broadway at 34th St., Kansas City, Mo.

PART FOUR

ECONOMICS AND BUSINESS

DIVISION X

BUSINESS AND FINANCE

ECONOMIC AND BUSINESS CONDITIONS

By S. S. Huebner

Professor, University of Pennsylvania

IMPROVED AND INCREASING BUSINESS

Nearly all outstanding business indices showed a remarkable increase in business activity during 1940, with highest levels, still increasing, at the close of the year. The iron and steel business operated at nearly full capacity, and exceptional gains were also recorded for the locomotive manufacturing, tin manufacturing, coke, slaughtering and meat packing, news print production, and zinc production businesses. Building construction proceeded at a rate, as will be explained later, not witnessed in years, and the same was also true of automobile sales and electric output. Exports and imports both showed a substantial increase over recent years, with a huge balance of trade exceeding $1,000,000,000. Dividend payments were also much larger than in 1939, especially in the industrial field where the increase amounted to approximately 14%. The commercial failure record was also splendid, as compared with the showing of the last five years.

In only a few of the leading industries was the improvement moderate or slight, as for example, agriculture, new capital flotations, bank clearings, and the railroad industry, but even such improvement was noteworthy in that these activities were exceptionally slow in recent years. The security market alone, among outstanding activities, seemed to be an exception to the general trend of the year. Despite improvement in business and increased declarations in dividends, the stock market remained unusually stagnant throughout the year, both in volume of transactions as well as in the price level. For about four months the average stock price held fairly well to the closing price of 1939. Thereafter a substantial decline occurred for May and June, with a later recovery which, however, still left the average price level at the close of the year considerably behind the closing level of 1939.

Sight must not be lost of the fact that much of the year's improvement must be attributed to foreign war orders or artificial governmental action, especially in connection with the national defense program. The year's progress, therefore, may not be considered as due to a natural, normal business demand. As the *Guaranty Survey* (Nov. 25 issue) well put it: "There can be little question that the current high levels of production and trade are for the most part due, directly or indirectly, to the military requirements of our own and foreign governments. Not only are the foreign orders very large and the demands of our own defense program rapidly increasing, but the prospect of capacity operations in strategic industries for some time to come has led to a wave of forward buying in anticipation of possible shortages, priorities and price advances. Activity of this kind obviously can not be regarded as constituting a normal business recovery. Huge expenditures for war equipment designed not for production but for destruction, however necessary such outlays may be at times, can represent only an economic burden in the long run. And inventory accumulation by private business can not continue indefinitely. Already the prospect of new taxes and new borrowing to meet the staggering cost of defense is taking shape."

AGRICULTURE

The agricultural situation remained much the same as that of 1939, and as a whole was a fairly good one. The spring wheat crop was about 7% above that of the previous year, while the corn estimate was about 8% below that of 1939. On the other hand, the cotton crop was nearly 1,000,000 bales in excess of the 1939 harvest. To quote the *Guaranty Survey* (issues of Oct. 28 and Nov. 25):

"The year has been one of abundant farm production, according to the Department of Agriculture, with prices of farm products higher on the average than a year ago and estimated cash farm income the second largest since 1929. Prices of practically all farm products except hogs and chickens average higher in the first ten months of this year than in the same period last year. Farm cash income is now declining seasonally; but the level continues to compare favorably with that in 1939, with a prospect that the total for the final quarter of the year may slightly exceed that a year ago."

"Domestic consumption is at a high level and, with large defense requirements in prospect, is expected by the Department of Agriculture to reach a record figure. Foreign demand, on the other hand, has dwindled rapidly for the last few months with a virtual disappearance of most European markets; and exports from this country during the current season are believed likely to equal less than one-third of the shipments in 1939-1940. Total consumption of American cotton accordingly is expected to fall far short of providing a market for the current crop and to leave a carry-over at the end of the season approaching or even exceeding the record figure a year ago."

Prices of leading farm products in late 1940 (November) varied considerably from the December prices of 1939, in most instances being moderately higher. Thus, for cattle, the November, 1940, price was $11.75 per 100 pounds as compared with $9.40 for December, 1939; for hogs, $6.20 as compared with $5.20; for corn 67⅛¢ as compared with 56⅛¢; for wheat (No. 2 Red Chicago) 93¾¢ compared with $1.06⅝¢; and for cotton 9.68¢ per pound as compared with 10.99¢.

MANUFACTURING AND MINING INDUSTRIES

In these industries, where the output of product is more subject to control than in agriculture, price changes were also very considerable, in most instances being lower although substantial increases showed themselves in certain directions. Comparing November, 1940, (the latest available) with the December quotations of 1939, the following price changes may be selected from the many listed in the *Guaranty Survey* (Nov. 25): coffee, 7¢ per pound as compared with 7¼¢; copper, 11.87½¢ per pound as compared with 12.37½¢; hides, 14½¢ per pound as compared with 14½¢; pig iron, $22.50 (per gross ton) as compared with $22.50; steel billets (Pittsburgh), $34.00 per gross ton as compared with $34.00; lead, 5.80¢ per pound compared with 5.50¢; petroleum (Pennsylvania), $2 per barrel compared with $2.50; rosin, $1.88½ per 280 pounds compared with $2.26; rubber, 21⅜¢ per pound compared with 20⅜¢; silk, $2.56½ per pound compared with $3.84; sugar, 2.90¢ per pound compared with 2.95¢; tin, 50.50¢ per pound compared with 50.50¢; wool, $1.10 per pound compared with $1.02; zinc, 7.25¢ per pound compared with 6¢.

INDEX NUMBER OF COMMODITY PRICES

(Source: U. S. Dept. of Labor—Standard Trade & Security *Current Statistics*)
(Source: U. K. Board of Trade—*Bank of England Statistical Summary*)

	U. S. Dept of Labor		U. K. Board of Trade	
	1939	1940	1939	1940
January	76.9	79.4	97.2	125.3
February	76.9	78.7	96.8	128.3
March	76.7	78.4	96.6	128.8
April	76.2	78.6	97.2	132.2
May	76.2	78.4	97.8	133.7
June	75.6	77.5	98.1	134.4
July	75.4	77.7	98.1	139.7
August	75.0	77.4	98.1	140.1
September	79.1	78.0	105.6	141.1
October	79.4	78.7	110.9	142.7
November	79.2		118.6	
December	79.2		122.3	

NEW CAPITAL FLOTATION

New corporate financing continued during 1940 on a somewhat larger but still on the same scale of stagnation as was the case during the preceding five years, 1935-1939. The total new capital financing for the first nine months of 1940 aggregated only $444,821,985 as compared with $301,796,047 for the same period of 1939, $315,947,000 for 1938, and with $1,154,135,177 for 1937. Smallness of the year's new capital flotation was also indicated by comparing it with the yearly totals of $1,215,000,000 for 1936, $4,494,000,000 for 1930, and $8,639,000,000 for the banner year, 1929. However, the 1940 record greatly exceeds the extraordinarily small figures presented during the height of the depression period, namely, 1932-1935. It is also interesting to note a tremendous monthly fluctuation in new

YEARLY AVERAGE

(U. S. Dept. of Labor)

1904		59.7
1905		60.1
1906		61.8
1907		65.2
1908		62.9
1909		67.6
1910		70.4
1911		64.9
1912		69.1
1913		69.8
1914		68.1
1915		69.5
1916		85.5
1917		117.5
1918		131.3
1919		138.6
1920		154.4
1921		97.6
1922		96.7
1923		100.6
1924		98.1
1925		103.5
1926		100.0
1927		95.4
1928		96.7
1929		95.3
1930		86.4
1931		73.0
1932		64.9
1933		66.0
1934		75.0
1935		80.0
1936		80.8
1937		86.3
1938		78.6
1939		77.1
1940	(October figure)	78.7

CORPORATE FINANCING

	1939		1940	
	Capital	Refunding	Capital	Refunding
January	$ 5,926,000	$ 10,386,000	$35,405,000	$137,460,000
February	23,571,000	136,115,000	45,404,000	210,842,000
March	52,979,000	46,689,000	30,527,000	103,799,000
April	78,160,000	129,249,000	53,925,000	192,353,000
May	21,740,000	151,002,000	89,287,000	82,660,000
June	r 30,241,000	251,798,000	9,339,000	102,276,000
July	r 50,139,000	r 180,671,000	44,989,000	225,623,000
August	25,895,000	300,963,000	67,938,000	111,494,000
September	16,019,000	r 79,195,000	68,006,000	62,465,000
October	r 20,297,000	r 157,474,000		
November	r 21,640,000	r 90,835,000		
December	r 30,528,000	r 195,817,000		

1940 figures from *Survey of Current Business*, November, 1940, p. 34.
1939 figures revised. Figures (r) appear in *Survey of Current Business*, August, 1940, p. 34.

capital flotations during 1940. Thus, for June, the total was less than $10,000,000, whereas in November the total reached nearly $169,000,000.

YEARLY TOTALS

	Capital	Refunding
	Commercial and Financial Chronicle	*Commercial and Financial Chronicle*
1940*........	$ 660,799,224	$1,666,805,374
1939........	371,249,537	1,807,623,508
1938........	871,998,950	1,267,245,739
1937........	1,225,012,213	1,208,679,946
1936........	1,214,950,299	3,416,995,382
1935........	403,569,958	1,863,858,807
1934........	178,257,949	312,836,500
1933........	160,717,178	220,866,478
1932........	325,361,625	318,533,720
1931........	1,763,448,723	825,516,700
1930........	4,944,403,166	528,875,877
1929........	8,649,439,560	1,386,921,569
1928........	6,079,602,416	1,738,274,615
1927........	5,391,008,544	1,928,187,260
1926........	4,357,002,750	942,550,970
1925........	4,100,725,167	637,384,524
1924........	3,322,295,764	516,275,300
1923........	2,702,496,155	530,343,942

* Eleven months.

BANK CLEARINGS

Such clearings showed a moderate increase toward the end of the year, the grand total for the week ended Dec. 14 (as reported by the *Commercial and Financial Chronicle*) for 113 cities being $6,788,168,606, as compared with $7,014,038,376 for 1939; $7,506,460,750 for 1938, and $7,101,638,825 for 1937. The year, judged by this particular week, thus showed a decline of 3.2% in comparison with 1939. New York City represented the larger share of the nation's clearings, all cities outside of New York representing collectively only $3,182,000,000 out of the grand total of $6,788,000,000 for the nation, including New York City, for the week ended Dec. 14, 1940. The following table shows the increases or decreases for all Federal Reserve centers in comparison with the corresponding week of 1939.

Federal Reserve District	1940 (millions)	1939 (millions)	Increase or Decrease %
First—Boston (12 cities).....................	$ 317	$ 298	+6.4
Second—New York (13 cities)..............	3,734	4,092	−8.8
Third—Philadelphia (10 cities).............	510	456	+8.2
Fourth—Cleveland (7 cities)................	390	358	+8.9
Fifth—Richmond (6 cities)..................	187	168	+11.7
Sixth—Atlanta (10 cities)..................	215	198	+8.2
Seventh—Chicago (18 cities)................	598	637	−6.0
Eighth—St. Louis (4 cities)................	187	179	+4.0
Ninth—Minneapolis (7 cities)...............	124	120	+2.9
Tenth—Kansas City (10 cities)..............	154	151	+2.4
Eleventh—Dallas (6 cities).................	79	84	−5.6
Twelfth—San Francisco (10 cities)..........	292	273	+7.1
Grand Total (113 cities)....................	6,788	7,014	−3.2
Outside New York City......................	3,182	3,057	+4.1

For the first nine months of 1940 bank clearings for the nation totaled $225,000,000,000 as compared with $307,000,000,000 and $294,000,000,000 for the corresponding period of 1939 and 1938. For the nation as a whole, excluding New York City, such clearings for 1940 totaled $109,000,000,000 for the first nine months of the year as compared with $181,000,000,000 and $171,000,000,000 for the same period of 1939 and 1938.

SECURITY MARKETS

Like 1939, the 1940 security market record is again a fairly cheerful one, although it is very surprising that, in view of the tremendous volume of sinister international and national news, no sensational price movements occurred throughout the year. For the year as a whole, stock market prices substantially maintained the price level prevailing at the close of 1939 from January to April, inclusive. Thereafter, a moderate bear market ensued which extended from May to June. Following this reaction the market again experienced a substantial recovery during the last four months of the year, but for nearly all groups of stocks, with the exception of railroads, the closing prices of the year still lagged considerably behind the December average of 1939. In 1939 it was stated that the outbreak of the war had been substantially discounted by the market. In 1940, despite a very substantial increase in the volume of business, occasioned by war and defense orders, the market nevertheless remained comparatively dull and unwilling to make any progress in quoted values as compared with the preceding year. It seems that most of the serious problems of 1939 are still present and causing much confusion to the speculative community. There can be no doubt that the prospects for increased taxation and a continuing unbalanced Federal budget, as well as the fear of the regulation of profits and the regimentation of business, have exerted a chilling effect upon our speculative markets. (See "The Security and Money Markets, pp. 390-395)

RAILROAD INDUSTRY

Previous issues of THE AMERICAN YEAR BOOK called attention to the unfavorable railroad situation during recent years, although the 1939 issue showed a material improvement. That improvement continued moderately during 1940. According to the Association of American Railroads' announcement, revenue freight car loadings for the year, up to and including the week of Dec. 7 (latest information available) stood at 34,374,215 for 1940 as compared with 32,033,910 and 28,777,442 for the corresponding period of 1939 and 1938. Gross income for 137 railroads, according to the Bureau of Statistics of the Interstate Commerce Commission, amounted to $459,350,486 for the first eight months of 1940, as compared with $358,515,607 for the corresponding period of 1939. Net income, however, was considerably smaller for the period, namely, $26,917,908 as compared with $73,016,847 for the corresponding period of the previous year. However, the net income situation seemed to improve as the year progressed, the August showing for 1940 (latest available) being $21,724,923, as compared with $10,240,043 for 1939. For September, quoting the *Guaranty Survey* (Nov. 25 issue): "Railway earnings continued to increase in September, although for the first time this year they failed to equal the level of a year ago. Net operating income of the Class I roads was at the annual rate of return of 2.48% on property investment, as against 2.42% in August and 2.9% in September of last year. Operating revenues were slightly larger than a year ago, but the gain was much more than offset by increases in operating expenses and taxes. Total net operating income for the first nine months of the year represented an annual rate of 2.36% as compared with 1.91% a year earlier. Of the 132 reporting roads, 20 failed to earn expenses and taxes in the first nine months of the year. Preliminary reports from 86 railroads representing 82.1% of total operating revenues show that estimated operating revenues of these roads last month were 2.5% below those in October, 1939. This decline compares with a gain of 0.4% for all Class I roads in September."

EXPORTS AND IMPORTS

This branch of economic activity showed a considerable improvement over 1939, although a considerable portion of the improvement is traceable to the exports of war materials. Exports for the first ten months of 1940 totaled $3,374,010,000, and imports $2,148,630,000. These figures compare with exports of $2,516,678,000 for the first ten months of 1939, and with imports during the corresponding period of 1939 of $1,835,816,000. The 1940 exports (first ten months) of $3,740,000,000 compared with $2,573,000,000 for the same period of 1938, and $2,711,000,000 in 1937. Imports of $2,148,000,000 (first ten months) compared with $1,612,000,000 for the first ten months of 1938 and $2,651,000,000 for the corresponding period of 1937. The year's export figures for the first ten months were also interesting in that they very considerably exceeded the calendar year totals of $2,456,000,000 and $2,283,000,000 for 1936 and 1935. Imports for the first ten months also nearly equalled the 1936 calendar year total of $2,422,000,000, and considerably exceeded that of 1935 ($2,047,000,000). It should also be noted that during the year the balance of trade, as reflected by the excess of exports over imports, amounted to the huge total of $1,226,000,000.

AUTOMOBILE PRODUCTION

Figures of automobile production during the first 11 months of 1940, ending with November, showed a great increase over the corresponding period of 1939 and 1938. For 1940 (first 11 months) total production amounted to 3,985,787 units (for all vehicles) as compared with 3,125,150 units for the corresponding period of 1939, and 2,100,739 for the same period in 1938. While the year's production for 11 months amounted to nearly 4,000,000 units, it is interesting to note that the total still falls considerably behind the 1929 record of 5,621,715 units. The 1940 gain over 1939 took place mostly with respect to passenger cars. Here the production was 3,295,797 units, as compared with only 2,492,992 in 1939. As regards trucks, the production was but slightly larger, namely, 689,990 units as compared with 632,158 in 1939.

IRON AND STEEL OPERATIONS

In the iron and steel business, 1940 showed a decided improvement over 1939, just as that year represented a substantial gain over 1938. According to the American Iron and Steel Institute, the business showed a total of 28,678,224 tons of open hearth and Bessemer steel ingot production during the first six months of the year, the amount being just about equally distributed over the first two quarters of the year. Thereafter the production rose steadily to a record of 17,523,339 tons for the third quarter of the year. During October and November, 12,744,722 tons were added. Thus for the first 11 months of the year, production totaled 58,946,285 tons, compared with 51,584,986 tons for the same 11 months of 1939, or a gain of nearly 14%. During 1939, the gain for the first 11 months was 65% in excess of the corresponding production during 1938. Prices for pig iron and steel billets were also well maintained during the year. For pig iron the price was $22.50 for November, 1940, as compared with $22.50 and $20.50 for December and January of 1939, while for steel ingots (Pittsburgh) the November, 1940, price of $34 was the same as that prevailing at the end and beginning of 1939.

In the later weeks of 1940 current press reports indicated that the business was operating at approximately 96% of capacity. The extraordinary activity along this line was no doubt attributable in large part to the rising volume of war and national defense orders. Yet sight must not be lost of the gradual increased demand that has come from domestic non-war needs. As was pointed out last year, "in this particular field a very large back-log of wear and tear during depression years needs to be replenished."

ELECTRIC OUTPUT

According to the Edison Electric Institute, the production of electricity by the electric light and power industry of the United States totaled 2,622,850,000 KWH for the week ended Dec. 28, 1940. This output exceeds that of the corresponding week of 1939 by 9.1%. In fact, during the whole of the last quarter of the year, the weekly output for 1940 consistently exceeded that of 1939 week by week, the increases ranging from a minimum of 6.8% to 10.2%. It is interesting to note that the output of 2,622,000,000 KWH for the week of Dec. 28, 1940, compared with 2,404,000,000 for the corresponding week in 1939, 1,998,000,000 in 1937, 1,415,000,000 in 1932, and 1,837,000,000 in 1929.

BUILDING CONSTRUCTION

Using the figures of the F. W. Dodge Corporation for 37 eastern states, new building awards for 1940, during the first ten months, totaled $3,850,000,000, as compared with total year figures of $3,550,000,000 for 1939, $3,197,000,000 for 1938, $2,913,000,000 for 1937, $2,675,000,000 for 1936, $1,844,000,000 for 1935, and $1,543,000,000 for 1934. The 1940 record for ten months was, therefore, more than twice the yearly total for 1935.

Of the 1940 record, for the first ten months, public and private non-residential construction amounted to $450,000,000 and $750,000,000, respectively; public and private residential construction to respectively $260,000,000 and $270,000,000; and public and private public works and utilities to respectively $970,000,000 and $150,000,000. Public construction work of all kinds totalled $1,680,000,000 or 44% of the total, and private construction of all kinds amounted to $2,170,000,000 or 56%.

Much of the year's gain was traceable to war and defense requirements. According to the *Guaranty Survey* (issue of Sept. 30): "The construction industry has been strongly affected by defense requirements. Activity, as measured by the F. W. Dodge Corporation figures of contracts awarded in 37 states, reached a ten-year peak last month. Residential building contracts were the largest since July, 1929, and exceeded last year's comparable total by 20%. In addition to the large increase in public contracts, private activity was 43% greater than a year ago, particularly because of a sharp gain in manufacturing construction reflecting plant expansion for defense, and particularly because of substantial increases in private commercial and residential building contracts. Total construction volume for 1940 is now expected to exceed by a considerable margin the estimates current at the beginning of the year."

COMMERCIAL FAILURES

The 1940 record of commercial failures was again a very favorable one, as was the case during the preceding four years. The total number of business failures reported by Dun and Bradstreet for the first nine months of 1940 (latest available) amounted to 11,509 as compared with 12,431 for the corresponding period of 1939. It should be stated that Dun and Bradstreet have revised their figures with respect to both the number of failures and the liabilities involved, the "new series" as compared with the "old series" for previous years being somewhat larger, the increase, judged from the record of 1939, being about 20% with respect to the number of failures and 8% with reference to the liabilities. The nine months record of 1940 (11,509 "new series") compares with full yearly records ("old series") of 11,408 for 1939, 12,836 for 1938, 9,490 for 1937, 9,607 for 1936, 12,244 for 1935, 12,091 for 1934, 19,859 for 1933, and 31,822 for 1932, the bottom year of the depression. The total liabilities of failures amounted to only $136,603,000 for the first nine months of 1940, as against $156,076,000 for the corresponding period of 1939. The 1940 nine months record ($137,000,000) compares with the full yearly records ("old series") of $168,000,000 for 1939, $247,000,000 for 1938, $183,000,000 for 1937, $203,000,000 for 1936, $311,000,000 for 1935, $334,000,000 for 1934, $458,000,000 for 1933, and $928,000,000 for 1932, the bottom year of the depression.

INDUSTRIAL AND RAILROAD DIVIDENDS

For the first nine months of 1940 dividend declarations of industrial American corporations (*The New York Times*) totaled $2,502,146,000, and for American railroads $116,162,000. These totals compare with $2,199,528,000 and $105,847,000 for the corresponding nine months of 1939, thus showing increases of about 14% and 10%, respectively. The 1940 nine months record of industrial dividends ($2,502,000,000) compares with (using the Babson tables of previous years) $2,015,000,000 and $2,707,000,000 for the corresponding period in 1939 and

1937, $2,163,000,000 in 1936, $1,717,000,000 in 1935, $1,616,000,000 in 1934, $1,481,000,000 in 1933, and $1,863,000,000 in 1932. Railroad dividend payments for the first nine months of 1940 ($116,000,000) compares with $106,000,000 for the corresponding period of 1939, and with $148,000,000, $175,000,000, $141,000,000, $141,000,000, $122,000,000, and $141,000,000 for the corresponding months of 1937, 1936, 1935, 1934, 1933 and 1932.

GENERAL BUSINESS INDICES

Using the figures of the Board of Governors of the Federal Reserve System, it would appear that October, 1940 (the latest figures available) showed considerable increases along most important lines as compared with the corresponding month of 1939. Thus the index for automobile production showed an increase of from 96 to 130, for locomotives from 97 to 159, tin deliveries from 101 to 146 (July), coke from 192 to 252, slaughtering and meat packing from 113 to 127, newsprint production from 103 to 112, iron ore from 133 to 156, and zinc from 116 to 132. More moderate increases are shown for iron and steel, textiles, and wheat flour. Certain exceptions, however, should be noted, like the plate glass industry with a decrease from 124 to 111, sugar meltings from 107 to 104, leather production from 105 to 95, petroleum refining from 118 to 112 (September), lubricating oil from 132 to 102 (September), bituminous coal from 123 to 98, and anthracite coal from 112 to 91. The figures for numerous leading groups are as follows:

INDUSTRIAL PRODUCTION
(1935–1939 average = 100)

	Adjusted for Seasonal Variation			Without Seasonal Adjustment		
	Oct. 1940	Nov. 1939	Oct. 1939	Oct. 1940	Nov. 1939	Oct. 1939
MANUFACTURES						
Durable Goods						
Iron and Steel	165	161	161	164	161	159
Automobiles	130	91	96	142	111	94
Locomotives	159	98	97	151	95	92
Plate Glass	111	112	124	127	127	142
Tin Deliveries	(July) 146	118	101	(July) 143	112	102
Beehive Coke	252	244	192	259	269	198
Non-Durable Goods						
Textiles	123	128	119	126	131	123
Slaughtering and Meat Packing	127	116	113	127	131	113
Wheat Flour	104	97	101	113	100	110
Sugar Meltings	104	92	107	101	76	104
Newsprint Production	112	101	103	112	104	103
Leather Production	95	108	105	96	99	106
Petroleum Refining	(Sept.) 112	117	118	(Sept.) 114	118	121
Lubricating Oil	(Sept.) 102	125	132	(Sept.) 102	125	132
Tobacco Products	115	110	111	120	112	115
Minerals						
Bituminous Coal	98	119	123	109	135	137
Anthracite	91	97	112	97	99	118
Petroleum, Crude	116	120	116	115	116	115
Iron Ore	156	155	133	294	165	270
Zinc	132	127	116	132	128	116
Silver	(Sept.) 109	109	98	(Sept.) 107	108	100

Source: *Federal Reserve Bulletin*, December, 1940.

COMMODITY INDEX NUMBERS

Using the U. S. Department of Labor *Statistics Price Index* for main groups of commodities, 1940 experienced only a slight change in the price level in practically all groups of industries. For the month of October, 1940, this index stood at 78.7 as compared with 77.5 for June, 1940, 79.4 for January, 1940, and 76.9 for January, 1939. The latest available average of 78.7, for October, 1940, compares with total yearly averages of 77.1 for 1939, 78.6 for 1938, 86.3 for 1937, 80.8 for 1936, 80 for 1935, 75 for 1934, and 66 for 1933, 64.9 for 1932, 73 for 1931, 86.4 for 1930, 95.3 for 1929, 100 for 1926, and 154.4 for 1920, the highest yearly average under this index since the beginning of the century. While favorable in comparison with the years 1931-1934, the 1940 price level is still far beneath the levels to which we were accustomed prior to 1931. In practically all of the recorded groups there was only a moderate increase, as is indicated by the accompanying table. It is also interesting to note that, in contrast to the American index, the United Kingdom Board of Trade index shows a very material increase for 1940, namely, from 125.3 in January to 142.7 in October, this latter figure contrasting with 97.2 in January, 1939. In tabular form the index numbers of the U. S. Department of Labor for the main groups of commodities, at the close of the year, compared with former years as follows:

DEPARTMENT OF LABOR STATISTICS WHOLESALE PRICE INDEX

(for main groups of commodities)
(1926 = 100)

Commodity Groups	Dec. 21 1940	Dec. 23 1939	Dec. 24 1938	Dec. 25 1937	Dec. 26 1936
All Commodities	79.7	79.3	76.6	81.2	84.1
Farm Products	69.1	67.8	67.2	72.9	88.4
Foods	73.4	72.1	72.2	78.9	85.7
Hides and Leather Products	102.7	104.4	93.8	98.4	101.1
Textile Products	74.2	77.8	65.2	69.4	76.1
Fuel and Lighting Materials	72.6	73.5	73.8	78.6	77.5
Metals and Metal Products	97.6	96.1	94.8	96.2	89.1
Building Materials	99.2	93.6	89.3	92.5	89.7
Chemicals and Drugs	77.7	78.0	76.4	79.2	86.1
Housefurnishing Goods	90.2	90.0	87.6	91.4	84.3
Miscellaneous	77.1	77.4	72.9	74.9	74.5
Raw Materials	72.9	73.3	70.3	75.3	85.5
Semi-manufactured Articles	80.7	82.1	75.1	77.4	83.1
Finished Products	83.1	82.2	80.2	85.0	83.9
All Commodities Other Than Farm Products	82.0	81.8	78.7	83.1	83.1
All Commodities Other Than Farm Products and Foods	84.4	84.3	80.5	83.6	82.4

Source of data: *Commercial and Financial Chronicle*—last issue in December of each year.

LABOR CONDITIONS

With respect to labor conditions, using October as the basis (latest figures available), 1940 employment showed considerable advances along most lines as compared with the same month of 1939. Likewise with respect to payrolls, the showing was also favorable as regards leading industries. Some, like iron and steel, machinery, transportation equipment, and nonferrous metals, showed a remarkable increase both in employment and payrolls. Referring to the December report of the Board of Governors of the Federal Reserve System, the showing was as follows for leading types of industries as regards both "employment" and "payrolls":

FACTORY EMPLOYMENT AND PAYROLLS

	Employment						Payrolls		
	Adjusted for Seasonal Variation			Unadjusted for Seasonal Variation			Unadjusted for Seasonal Variation		
	Oct. 1940	Oct. 1939	Nov. 1938	Oct. 1940	Oct. 1939	Nov. 1938	Oct. 1940	Oct. 1939	Nov. 1938
Durable Goods									
Iron and Steel	116.0	105.9	89.1	117.1	106.8	89.5	123.3	112.1	81.0
Machinery	126.4	105.7	89.2	127.0	106.6	89.6	144.9	111.0	83.2
Transportation Equipment	139.1	106.4	90.6	138.5	106.1	92.3	161.3	110.8	95.6
Non-ferrous Metals	122.4	107.0	91.9	126.3	110.4	94.9	136.6	113.6	87.0
Lumber and Products	71.3	69.4	64.0	74.4	72.4	64.7	73.7	68.7	55.9
Stone, Clay and Glass	84.6	81.9	76.8	87.4	84.8	77.3	82.5	80.3	67.3
Non-durable Goods									
Textiles and Products	102.7	106.0	100.0	104.6	108.0	100.2	93.4	93.5	80.5
Leather Products	91.1	97.4	97.6	90.0	96.2	90.4	73.3	76.5	66.4
Food Products	129.7	126.9	127.4	140.9	137.7	127.6	134.1	130.0	120.6
Tobacco Products	63.3	63.5	65.0	66.5	66.7	68.3	66.7	63.4	61.8
Paper and Printing	116.2	115.0	110.6	117.6	116.5	112.3	115.1	113.8	104.5
Chemical and Petroleum Products	122.7	119.9	113.3	125.0	122.3	114.6	139.5	133.3	118.3
Rubber Products	91.5	91.2	81.4	92.6	92.4	82.3	101.0	101.9	83.0

Sources:

Employment figures

Nov. 1938:

Adjusted. *Federal Reserve Bulletin*, January, 1940, p. 48.
Unadjusted. *Commercial and Financial Chronicle*, Jan. 20, 1940, p. 345.

Oct. 1939 and 1940:

Adjusted. *Federal Reserve Bulletin*, December, 1940, p. 1314.
Unadjusted. *Commercial and Financial Chronicle*, Dec. 21, 1940, p. 3660.

Payrolls

Nov. 1938:

Commercial and Financial Chronicle, Jan. 20, 1940, p. 345.
Others from *Federal Reserve Bulletin*, December, 1940, p. 1314.

THE SECURITY AND MONEY MARKETS

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GENERAL CONDITIONS

The account of the year 1939 outlined the economic factors influencing security prices during that year, and emphasized particularly the unbalanced Federal budget, the heavy tax burden upon corporations, the prospects of war during the first three quarters of the year with a final outbreak of war in Europe during the final quarter, and the improvement of the building, iron and steel, and various so-called war industries during the latter part of the year. Of the new factors, the outbreak of the European war was clearly the most disconcerting, and the situation was described as follows:

"Only one new factor of importance stock-market-wise is apparent, namely, the outbreak of the new European war. War scares were frequent during the early months of the year, and possibly occasioned the market decline from January to April, inclusive. But the effect of war fears finally subsided and the market exhibited increasingly a steadying tendency. When war finally materialized, the stock market seemed remarkably settled. With the outbreak of the last World War the stock market was in chaos, and the Exchanges of the world had to be closed for four months. And following this shock, the market, during all of 1915, experienced a rise of extraordinary boom proportions. This year, however, presents an entirely different spectacle. A moderate rise occurred, it is true, with the announcement of war, occasioned chiefly by the rise in certain groups of stocks—like the iron and steel, chemical, motor and aircraft groups—which were most likely to be beneficiaries of large war orders. But this price rise soon spent its force, and subsequently was largely lost before the end of the year. . . . If we look upon the stock market as a discounter of the future, it would appear that this time war no longer affords the speculative community the glamor that was the case in 1914-15."

All of the factors as outlined above have continued during 1940 with, however, the added introduction of a huge national defense program. Business as a whole has improved considerably beyond the level reached at the close of 1939, owing chiefly to defense and war orders, the iron and steel business at the close of the year operating at nearly full capacity. Yet despite this enlarged business, the stock market has shown a remarkable degree of lethargy and an unwillingness to establish a higher price level. From January to May the stock market price level remained virtually constant, with prices about those prevailing at the close of 1939. Thereafter a substantial decline occurred during May and June, which was followed by a substantial recovery which lasted until November, after which prices remained at practically the established level to the end of the year. With the exception of the railroad group, however, where the recovery brought the price level back to the figure for December, 1939, the recovery in all other leading groups of stocks left the price level at the end of 1940 considerably behind the closing level of 1939. In view of the rising volume of business, it is difficult to explain this unusual action of the market. Probably the showing is due primarily to a fear on the part of the speculative community that war conditions are likely to bring about a further heavy increase in taxation, a possible attempt to regulate prices and limit profits, and a general tendency to regiment business in the interest of national defense, and possibly also actual entrance of the nation into the European war.

STOCK PRICES

Industrials.—The extent of the decline during May and June of 1940 and of the partial recovery during the subsequent months of the year, may be shown by the monthly averages of the Standard Statistics Company for various groups of stocks. Fifty representative industrial stocks maintained their monthly average fairly well from 119 for January to 119 for April. Thereafter the monthly average declined rapidly to 102.4 for May and 93 for June. This decline was followed by a rise from 95.1 for July to 110.7 for November. The November average of 110.7 compares with 123 for the same month in 1939, 129.1 for November of 1938, 107.8 for November of 1937, 168 for January of 1937, 129.1 for January of 1936, and 53.5 for the yearly average of 1932, the bottom year of the 1930-36 depression. It is interesting to note that the November, 1940, average of 110.7 is approximately two and one-half times the 1932 yearly average of 53.5. It should also be pointed out that during 1929 this industrial list reached the highest monthly level during September, namely, 245.9.

Rails.—With respect to 20 representative railroad stocks, the monthly average of the Standard Statistics Company was also well maintained from 31.2 in January, 1940 to 31.2 in April. Thereafter the monthly average declined to 26.4 in May and 22.1

in June. Following this decline, the monthly average consistently improved until 31.1 was reached for November. This November average of 31.1 compares with 33.5 for November, 1939; 31.7 for November, 1938; 33.1 for November, 1937; 47 for January, 1936; and with yearly averages of 36 for 1935; 42.9 for 1934; 39 for 1938; 26.8 for 1932; and 141 for 1929. During 1929 it should be noted that these railroad shares reached the highest monthly level during September, namely, 161.2. It is interesting to compare the November, 1940, average of 31.1 with the 1932 low monthly average of 15, and also with the September, 1929 high average of 161.2. Mention should also be made of the fact that the July-November recovery in the railroad group brought the monthly price level back to approximately the December, 1939, price of 31.7.

Utilities.—A similar trend is shown in the public utility group during 1940. According to the Standard Statistics Company average for 20 public utilities, the monthly average was fairly well maintained from 70.4 in January to 68.7 in April. Thereafter a decline occurred in the price level to 60.4 for May and 56.8 in June. Following this decline a moderate recovery occurred with a price level of 58.9 being established for November. This November, 1940, average of 58.9 compares with 69.5 for the corresponding month in 1939, with 66.4 for November, 1938, 63.3 for November, 1937, 100.9 for January, 1937, 88.4 for January, 1936, and with yearly averages of 62.8 for 1935, 65.5 for 1934, 81.8 for 1933, 88.7 for 1932, and 246 for 1929. During 1929, it should be noted that utility stocks also reached the highest monthly level in September, namely, 340.6. It is interesting to compare the November, 1940, average of 58.9 with the depression level of 88.7 in 1932, and with the 1929 high of 340.6. At the close of the year, the November average of 58.9 was still materially behind the December, 1939, level of 68.5.

Copper and Brass Shares.—Attention may also be called to a representative list of seven copper and brass stocks whose average price varied from a monthly average of 134.8 in January to 137.2 in April. Thereafter a decline occurred over a period of three months, bringing the average down to 92.3 for July. Following this, there was an increase in the monthly average until 141.3 was reached for the month of November. This average (the latest available) compares with 146.9 for the corresponding month in 1939, with 165.8 for November of 1938, 115.4 for November of 1937, 227.4 for January, 1937, and 113.4 for January, 1936.

Market Value.—Using the figures of the New York Stock Exchange (formerly published in the New York Stock Exchange *Bulletin,* but now furnished upon request), the total market value of the 1,457,000,000 listed shares on the New York Stock Exchange stood at $41,848,247,000 on Dec. 1, 1940. This value compares with $45,505,229,000 at the same date in 1939, with $46,081,000,000 on Dec. 1. 1938, $40,716,000,000 on Dec. 1, 1937, and with $62,618,000,000 for March of 1937, the high mark before the bear market of 1937-38 began its course. The present value of $42,000,000,000 may also be compared with the low of $34,585,000,000 for May of 1938.

Monthly Averages.—The average monthly "all stock price index," as furnished by the New York Stock Exchange, stood at 57 for November, 1940, as compared with 63.2 for November, 1939, 64.1 for November, 1938, and with 48.1 for May of the same year. The Dec. 1, 1940, average of 57 compares with the following December averages for preceding years: 37.8 for December 1937, 56.01 for 1936, 45.85 for 1935, 35.59 for 1934, 32.78 for 1933, 25.61 for 1932, 34.24 for 1931, 55.53 for 1930, 68.44 for 1929, and 97.8 for 1928.

VOLUME OF STOCK TRANSACTIONS

Stock transactions on the New York Stock Exchange during 1940 again

SECURITY MARKET PRICE AVERAGES

	Railroads 20 stocks		Industrials 50 stocks		Public Utilities 20 stocks		Copper and Brass 7 stocks		Stocks 90 stocks	
	1939	1940	1939	1940	1939	1940	1939	1940	1939	1940
Jan.	31.3	31.2	122.5	119.0	66.6	70.4	145.6	134.3	99.3	97.7
Feb.	30.3	30.9	120.7	118.3	69.7	69.9	134.5	131.7	98.5	97.0
March	31.1	30.8	120.4	117.9	69.6	67.8	136.9	133.6	98.3	96.5
April	25.6	31.2	105.2	119.0	62.1	68.7	115.6	137.2	86.0	97.4
May	26.8	26.4	108.7	102.4	65.5	60.4	114.0	117.6	89.2	84.0
June	27.2	22.1	110.7	93.0	66.6	56.8	117.9	99.3	90.8	76.8
July	27.9	26.3	113.2	95.1	68.6	61.7	123.1	92.3	93.0	79.4
August	27.0	26.9	111.1	97.5	70.2	61.1	125.1	97.8	91.6	81.0
Sept.	32.6	28.8	125.1	102.2	67.1	60.9	152.3	107.5	101.4	84.4
Oct.	35.0	29.4	125.5	103.5	69.0	59.8	154.2	113.2	102.4	85.2
Nov.	33.5	......	123.0	....	69.5	......	146.9	....	100.6	......
Dec.	31.7	......	120.2	....	68.5	......	141.3	....	98.2	......

*An average for the month based on daily closing prices.

Source: Standard Trade and Securities, *Current Statistics*, November, 1940

showed a substantial decrease from the volume recorded for the four previous years, 1936-39. Despite sensational war news and a very substantial increase in business, there was an amazing stagnation in stock market activity. With respect to only two months did monthly sales on the New York Stock Exchange exceed the 25,000,000-share mark, and during July and August the monthly volume was under 8,000,000 shares.

Shares sold on the New York Stock Exchange during 1940 totaled only 207,605,359 (as reported by *The New York Times*) as compared with 262,015,799 for 1939, 297,446,059 shares for 1938, 409,468,855 shares for 1937, 497,063,099 shares for 1936, 382,000,000 for 1935, 324,000,000 for 1934, 655.000,000 for 1933, 425,000,000 for 1932, 577,000,000 for 1931, 811,000,000 for 1930, and 1,125,000,000 for 1929, the highest figure on record. Previous issues of THE AMERICAN YEAR BOOK have explained that the huge rise in the number of shares dealt in during 1929 and 1930 is partly attributable to the substantial increase in the number of shares listed on the New York Stock Exchange. During 1933 and thereafter, however, the volume of transactions is not influenced by this factor. On the New York Curb Market sales also show a similar tendency towards further decline, the total sales standing at only 43,041,774 shares (*The New York Times*) as compared with 45,800,633 shares for 1939, 49,795,922 shares for 1938, 104,178,804 shares for 1937, 135,000,000 for 1936, 76,000,000 for 1935, 56,000,000 for 1934, 101,000,000 for 1933, 57,000,000 for 1932, 110-000,000 for 1931, 220,000,000 for 1930, and 474,000,000 for 1929.

THE BOND MARKET

Bond sales on the New York Stock Exchange during 1940 totaled $1,671,598,875 (*The New York Times* report) as compared with $2,048,237,875 for 1939, $1,859,525,825 for 1938, $2,792,531,000 for 1937, $3,575,000,000 for 1936, $3,437,000,000 for 1935, $3,729,000,000 for 1934, $3,366,000,000 for 1933, $2,972,000,000 for 1932, $3,075,000,000 for 1931, $2,779,000,000 for 1930, and $3,020,000,000 for 1929. During 1940 bonds maintained a fairly steady price level throughout the year. Using Moody's Bond Prices as a basis (*Commercial and Financial Chronicle,* Dec. 23, 1940) the monthly average for 120 domestic corporations stood at 106.92 at the beginning of the year. Thereafter the average price fluctuated from month to month, with an increasing tendency, until the price stood at 112.05 on Dec. 20, 1940. This compares with high and low for 1940 of 112.25 and 103.38, and with high and low for 1939 of 106.92 and 100.

SHARES TRADED ON THE NEW YORK STOCK EXCHANGE

	1939	1940
Jan.	25,185,780	15,991,105
Feb.	13,876,813	13,465,355
March	24,565,054	16,268,868
April	20,247,438	26,696,490
May	12,932,710	38,968,832
June	11,967,390	15,573,025
July	18,065,610	7,306,720
Aug.	17,372,281	7,616,050
Sept.	57,080,610	11,940,530
October	23,733,664	14,484,485
Nov.	19,219,736	20,893,471
Dec.	17,768,713	18,400,428

Source: Shares by Month—*The New York Times*, January 2, 1941, page 54

YEARLY TOTALS

(Shares of Stock)

1920	226,640,400
1921	172,712,716
1922	258,652,519
1923	236,115,040
1924	281,991,597
1925	454,404,733
1926	450,845,255
1927	576,563,218
1928	919,661,825
1929	1,124,991,490
1930	810,038,161
1931	579,921,426*
1932	425,235,829*
1933	654,874,210*
1934	323,871,840*
1935	381,666,197*
1936	496,063,099*
1937	409,468,885*
1938	297,446,059*
1939	262,015,799*
1940	207,605,359*

Source: *Babson chart*
**The New York Times*

The Dec. 20, 1940, price is, therefore, at practically the highest level for the year, and compares with prices of 105.6 and 100.88 for the corresponding dates of 1939 and 1938. United States Government bonds reached the exceedingly high level of 119.16 on Dec. 20, 1940, compared with high and low for the year of 119,63 and 113.02, and with 117.72 and 108.77 for 1939. On the corresponding date (Dec. 20) for 1937 and 1938, the price levels were 115.48 and 112.69. The extraordinarily high price of bonds has brought the average bond yield to very low figures. According to Moody's Bond Yield Average, the average yield for all of the 120 domestic corporations was down to 3.36% on Dec. 20. However, for choice bonds (the Aaa group) the yield was only 2.71%. Using the Standard Statistics Company average for 60 bonds, the monthly high average stood at 83.2 for January, 1940. Thereafter the price fluctuated slightly from month to month, the average standing at 83.8 for October (the latest available). This October average of 83.8 compares with the following yearly high December averages: 82.6 for 1939, 82.2 for 1938, 83.6 for 1937, 102.2 for 1936, 93.1 for 1935, 86.5 for 1934, 74.9 for 1933, 68.3 for 1932, 78.5 for 1931, 96.9 for 1930 and 99.1 for 1929.

All American bonds listed on the New York Stock Exchange (1,396 issues) show a total market value of $50,755,887,000 on Dec. 1, 1940. This value compares with $47,839,378,000 on Dec. 1, 1939, $50,301,000,000 on December 1, 1938, and with $39,088,000,000 on Dec. 1, 1937. On Dec. 1, 1940, the average price of the afore-mentioned number of listed bond issues stood at 93.58, which compares with 91.24 for Dec. 1, 1939, 90.34 for Dec. 1, 1938, 92.36 for Dec. 1, 1937, and with the following December averages of preceding years: 100.55 for 1936, 93.69 for 1935, 91.68 for 1934, 82.98 for 1933, 81.36 for 1932, 84.13 for 1931, 96.51 for 1930, 96.8 for 1929.

COMPOSITE BOND PRICES

(60 Bonds)

	1939		1940	
	High	Low	High	Low
Jan.	82.7	80.6	83.2	82.0
Feb.	82.9	81.5	82.6	81.9
March	84.6	80.8	82.4	81.8
April	80.7	78.3	83.3	82.0
May	81.2	79.3	82.3	76.5
June	81.9	80.2	80.3	77.0
July	82.3	80.3	81.7	80.3
Aug.	82.5	79.5	82.1	81.0
Sept.	82.6	78.0	83.5	82.1
Oct.	83.5	82.2	83.8	83.3
Nov.	83.4	82.3		
Dec.	82.6	81.7		

Source: Standard Trade and Securities *Current Statistics*—November, 1940

THE MONEY MARKET

With respect to both time and call loan rates, the 1940 tendency continued as it was during 1939 and the preceding six years. During all of 1940 there was a continuing plethora of idle funds. As was the case during previous years, in fact back to 1933, New York time and call loans were quoted at only about 1 per cent or under, thus showing a continuing unusual absence of demand for funds for both commercial and speculative purposes. Beginning with a January average of ¾ of 1 per cent for four to six months prime commercial paper, and 1 per cent for call loans in New York, the average monthly rates during 1940 remained extremely low month after month throughout the year. For prime commercial paper the rate in New York averaged 0.75% and 0.67% for January and February, and thereafter declined to a monthly average of 0.63% for March to October, inclusive. Later monthly averages are not now available, but it is certain that no appreciable change occurred during the last two months of the year. For call loans in New York, the monthly average remained at 1 per cent for each of the first ten months of the year, and here also no appreciable change occurred during the last months of the year.

According to New York Stock Exchange figures (Dec. 1, 1940), the borrowings of New York Stock Exchange members on collateral security showed a further decline from the extremely low figure of 1939. Thus time loans decreased from $31,000,000 on Dec. 1, 1939, to only $10,000,000 on Dec. 1, 1940. The present small total may be compared with $189,000,000 on Dec. 1, 1937. During the same period call loans decreased from $543,000,000 for Dec. 1, 1939, to only $352,000,000 on Dec. 1, 1940. Combining the two types of loans, total borrowings showed a further decrease from $574,000,000 in 1939 (Dec. 1) to $362,000,000 for the corresponding date in 1940. This combined total of $362,000,000 compares with corresponding figures prevailing on Dec. 1 of $620,000,000 for 1938, $687,000,000 for 1937, $984,000,000 for 1936, $846,000,000 for 1935, $831,000,000 for 1934, $789,000,000 for 1933, $336,000,000 for 1932, $730,000,000 for 1931, $2,162,000,000 for 1930, $4,017,000,000 for 1929, and $6,392,000,000 for 1928.

INTEREST RATES

	Commercial Paper 4–6 Months		Call Loans—New York Stock Exchange Renewals — Average of Daily Renewal Rates		Gold Movements (Figures show excess of Imports over Exports) (000,000 Omitted)	
	1939	1940	1939	1940	1939	1940
Jan.	0.75	0.75	1.00	1.00	156.4	236.4
Feb.	0.75	0.67	1.00	1.00	223.3	197.4
March	0.75	0.63	1.00	1.00	365.4	459.8
April	0.75	0.63	1.00	1.00	605.8	249.9
May	0.75	0.63	1.00	1.00	429.4	435.1
June	0.75	0.63	1.00	1.00	240.3	1,162.
July	0.75	0.63	1.00	1.00	278.6	520.0
August	0.75	0.63	1.00	1.00	259.9	351.6
Sept.	0.75	0.63	1.00	1.00	326.1	334.1
Oct.	0.75	0.63	1.00	1.00	69.7	326.0
Nov.	0.75	....	1.00	....	168.0	....
Dec.	0.75	....	1.00	....	451.2	....

Source: Standard Trade and Securities, *Current Statistics*, November. 1940

TEMPORARY NATIONAL ECONOMIC COMMITTEE

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THE COMMITTEE AND ITS BACKGROUND

On June 16, 1938 Public Resolution No. 113 "to create a temporary national economic committee" was approved by Congress. This was a joint resolution of the House and Senate setting forth the manner in which the committee was to be appointed together with a statement of the committee's powers and duties.

Regarding the composition of the committee the resolution was very explicit. Of a total of 12 members, three Senators were to be appointed by the President of the Senate; three Representatives were to be appointed by the Speaker of the House; one representative each was to be appointed from the following six branches of the Government by the head of the department or agency concerned: Justice, Treasury, Labor, Commerce, The Securities and Exchange Commission, and the Federal Trade Commission.

The resolution was sufficiently explicit regarding the powers of the Committee. It could spend money for experts, employees, travel, etc., up to $500,000 (later amended to $1,100,000). It could hold hearings, make investigations, prepare studies and reports. It could exercise the right of subpoena to require attendance and testimony of witnesses together with the production of books, papers, correspondence, contracts, agreements or other records.

DUTIES OF THE COMMITTEE

On the matter of duties the resolution was couched in rather general terms. Section 2 sets forth the duties of the committee as follows:

"(a) To make a full and complete study and investigation with respect to the matters referred to in the President's message of April 29, 1938, on monopoly and the concentration of economic power in and financial control over production and distribution of goods and services and to hear and receive evidence thereon, with a view to determining, but without limitation, (1) the causes of such concentration and control and their effect upon competition; (2) the effect of the existing price system and the price policies of industry upon the general level of trade, upon employment, upon long-term profits, and upon consumption; and (3) the effect of existing tax, patent, and other Government policies upon competition, price levels, unemployment, profits, and consumption; and shall investigate the subject of governmental adjustment of the purchasing power of the dollar so as to attain 1926 commodity price levels; and

"(b) To make recommendation to Congress with respect to legislation upon the foregoing subjects, including the improvement of anti-trust policy and procedure and the establishment of national standards for corporations engaged in commerce among the states and with foreign nations."

SCOPE OF THE INVESTIGATION

At least one thing is clear from a reading of this section: that Congress did not wish to restrict the scope of the inquiry. To develop fully the provisions of Section 2 would require in fact many years and many millions of dollars. This becomes especially clear when reference is made to the President's message of April 29, 1938, (*Strengthening and Enforcement of Anti-trust Laws,* Senate Document No. 173, 75th Cong., 3rd Sess.). Here the President set forth the many maladjustments in our present-day economy, pointing his remarks especially to the concentration of private economic power within the United States causing low standards of living for a large fraction of our people. He argued against the present-day concentration of corporate control, the concentration of ownership of assets and the concentration in the flow of income to a very small group. In developing his thesis no sharp distinction was made between management control, asset control, and income control. It was implied that the three are necessarily linked together. Together they successfully restrict competition and the free movement of prices; they encourage combinations, cartels, monopoly, causing total production to be curtailed to the detriment of all and most especially the small enterpriser, the farmer, and the wage-earner.

Congress asked that the Committee make a thorough investigation of these matters. A mere statement of them clearly indicates that the Committee was asked to find out what is wrong with our economy. At the opening session of the public hearings, Leon Henderson, then executive secretary to the Committee, phrased the matter thus: "The over-all question seems to be, why have we not had full employment and full utilization of our magnificent resources?"[1]

This is a very worth-while question. It is also an extremely broad one, so broad in fact that a closed answer could not be hoped for. That the Committee recognized this at the outset is indicated by the following, quoting again the executive secretary: "Naturally, any attempt at a full description of the anatomy of all American industries within the compass of these hearings is out of the question. The intention, therefore, is to present by reports and hearings a series of typical situations, drawn from different industries and illustrating different problems. The underlying connection among these varied situations will be their significance as living instances of the complicated and dynamic process which constitutes American Industry. For their value as representative examples, naturally the research staff must take full responsibility."[2]

THE APPROACH

If these statements in the joint resolution of Congress, in the President's message, and in the initial volume of the Hearings (see, also, *Investigation of Concentration of Economic Power,—A Preliminary Report,* Senate Document No. 95, 76th Cong., 1st Sess.) are to be taken at their face value, the position and program of the Committee at the outset of its work would appear to be:

Postulate 1: That private ownership of capital, private enterprise and private competition should be the American mode of economic endeavor.

Postulate 2: That there is too much concentration of ownership of capital, too much concentration of private enterprise, and too little private competition at the present time.

Postulate 3: That the United States is not at present producing goods and services at anything like its normal capacity mainly because of the difficulties assumed under Postulate 2.

Postulate 4: That the flow of goods and services to the lower economic groups is too small, relatively and absolutely, due mainly to the difficulties assumed under Postulate 2.

THE PROBLEM

The problem may thus be stated: (a) What are the main forces which have brought about our present state of private ownership, private enterprise, and private competition? (b) What measures can we take, either public or private, to assure greater diffusion of private ownership and private enterprise together with a more open and vigorous condition of competition?

The method of attack was: (a) select a series of typical situations rather than attempt an inventory of every type of business enterprise; (b) make a thorough factual appraisal of the manner in which these typical situations function; (c) by cross comparison and analogy, draw such inferences as seem warranted regarding present-day private ownership, private enterprise and conditions of competition.

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[1] Investigation of Concentration of Economic Power, *Hearings,* p. 180.

[2] *Ibid.,* p. 183.

It was expected that the results would be: (a) a more thorough and widespread appreciation of how our economy operates and especially of the selected areas of investigation; (b) a background basis for recommendations, either legislative or otherwise, designed to bring about more widespread ownership of capital, more widespread direction of business enterprise, and a more active and widespread state of competition.

PROGRESS

It is not possible to attempt a final judgment of how well the Committee carried forward this program since its work is not completed. Some comment can be made, however, regarding progress to date.

Following preliminary organization in June, 1938, an investigational staff was set up composed in part of staff employees of the six departments or agencies of the Government concerned and in part of men drawn from the outside, mostly from university faculty ranks. For the most part this investigational staff is composed of men with an economic or legal training, men in their thirties or forties with considerable experience along investigational lines but with little or no practical business experience. Their point of view is forward-looking in the sense that they attach no high regard to existing economic procedures where new ones can be found which promise better results. They are also human in the sense that they recognize the possibilities for advancement through original creative work or through publicity which reaches the headlines.

While the Committee has presided at hearings and exercised general supervision, the active development and execution of the T.N.E.C. investigation has rested in the hands of its investigational staff. Two lines of effort were mapped out. One consisted of public hearings at which members of the investigational staff testified as well as others invited by the staff. When business leaders or others were invited to testify, cross-questioning, planned by one or more members of the investigational staff, was usually employed in order to develop points regarded by the investigational staff as important. The second line of endeavor was a series of monographs prepared by selected investigators, each study limited to one integrated subject.

Hearings began on Dec. 1, 1938 and extended into May, 1940. None of the hearings held in 1940 has been released as yet in printed form. Those which have been released comprise a set of 27 volumes numbering in excess of 12,000 pages or approximately 8,000,000 words, exclusive of appendices. The volume to come will probably add another 3,000 pages, making the word total around 10,000,000. To this must be added the Committee's final report planned to be finished not later than April, 1941. With respect to the monographs, some 43 separate studies were assigned. These are now coming off the press. Twelve had been released by the close of 1940, aggregating 2,500 pages or roughly 1,500,000 words.

AREAS EXPLORED

With what areas of economic activity do these hearings and monograph studies deal? With respect to the hearings, and judged solely by space devoted to each subject, life insurance takes first place followed closely by the petroleum industry. The steel industry and investment banking come next. These are followed by technology, patents, savings and investments, the construction industry, monopolistic practices, the liquor industry, the copper industry, the beryllium industry, the consumer. With respect to the 43 monographs, only 12 of which have thus far been released, no indication of relative emphasis judged by space can be made. Nor can much be told from an examination of the titles. They range all the way from *Toward More Housing* to *Who Pays the Taxes?*

There are, however, certain threads of thought which run through the hearings and the monograph studies, judged by those which have been released to date. The principal ones are those indicated above in the outline of the Committee's approach. Our capital resources are centered in too few hands, giving these interests too much power over the direction and extent of production and distribution. The management of industrial and financial enterprise is centered in too few hands and arbitrarily exercised, resulting in price rigidity, production curtailment, a low level of income for all. Competition is fast passing from the economic picture causing increasing distress among the small enterprisers.

SPECIFIC ISSUES RAISED

As illustrations of these points, extended consideration is given in the life insurance hearings to the $27,000,000,000 of reserves held by these companies and especially the huge size of the half-dozen leading companies. The question is asked again and again: "Must a life insurance company continue to grow to protect its policyholders?" In the matter of management: "How do life insurance officers and directors get into office?" "Are they self-perpetuating groups?" "What are the interlocking relations with leading banking and industrial interests?" With reference to savings and investments; "Are our national savings funneled into banks there to be frozen by the managements of these banks?" With reference to management in the steel industry, in the petroleum industry, in the construction industry, etc.: "Is it mere circumstance that price changes are few in these industries and uniform among all the companies?" "Why, when volume falls off, are not prices lowered to keep production up as is the case in competitive agriculture?" To the automobile, glass container and beryllium industries: "Are patents employed primarily 'to promote the progress of science and useful arts' or as a further device to concentrate production and price control?" And to the investment banker: "Why private negotiations with companies asking for new capital? Why not open competitive bidding in the same manner in which government financing is handled?"

These and many more like them are issues of great public importance. There isn't just one side to any one of them. They have many ramifications requiring close and exhaustive analysis before one can feel sure that even a compromise answer is in the public interest. For these reasons it may be seriously doubted whether pressure hearings in a committee room are even a worthwhile approach. They do supply, scattered among much chaff, some kernels which will in time be gleaned by thorough workers and put to effective use. They do perhaps stir up some public interest. Somewhat more is to be expected from the monograph studies, though here again the pressure of time works heavily against the best quality of work.

Someday perhaps we may learn that great national economic questions are not matters to be settled by occasional combat and a handful of selected reports. In a country the size of this, questions of national economic policy are matters of continuous full-time study by trained social scientists having an annual budget of several million dollars. It is just possible the T.N.E.C. investigation may stimulate a move in this direction. If so that might rightly be regarded as its principal contribution.

X. BUSINESS AND FINANCE

BANKING AFFAIRS

By Gurden Edwards

Director, Research Council, American Bankers Association

GENERAL

Banks of all classifications in the United States on June 29, 1940 numbered 14,953 institutions with aggregate deposits, exclusive of inter-bank deposits, of $60,582,000,000, as reported in the *Federal Reserve Bulletin* of December 1940. The total investments of these institutions were $28,995,000,000 on the date given and their loans were $22,341,000,000. As to numbers, these figures showed a decrease of 129 banks during a year, as on June 30, 1939, 15,082 banks, including both national and state chartered institutions, were reported. In the same period there was an increase of $4,590,000,000 in the item of deposits. At the 1939 date, total deposits were $55,992,000,000. Total investments of these banks increased in the year indicated by $696,000,000 and their loans by $1,023,000,000. This latter circumstance reflected a substantial increase in the rate of loan expansion as compared with the previous year, when loans increased by only $188,000,000.

CLASSIFICATIONS OF BANKS

The *Bulletins'* report on banks by charter classes showed that there were on June 29, 1940, 5,164 national banks as compared with 5,203 banks of this class a year earlier. The national banks had deposits of $26,931,000,000 exclusive of inter-bank deposits, as compared with $24,534,000,000 on June 30, 1939. The same reports showed that there were 9,789 state banks as compared with 9,879 the year before; this figure comprised commercial banks, trust companies, and mutual and stock savings banks. The deposits of this group of banks totalled on June 29, 1940, $33,651,000,000 as compared with $31,458,000,000 June 30, 1939.

SUSPENSIONS

The 11 months of 1940 from January through November brought 22 suspensions of banks with total deposits of $5,943,000. This compares with 39 suspensions for the same period in 1939 with deposits of $35,213,000. Of the 1940 suspensions, 19 were insured by the Federal Deposit Insurance Corporation with deposits of $5,597,000; three, with deposits of $346,000, were uninsured.

BANKING QUESTIONS

The American Bankers Association, discussing banking questions in its resolutions at its annual convention, held in Atlantic City in September 1940, adopted the following declarations:

"During the past year there has been a huge increase of about four and one-third billion dollars in our stocks of gold, a somewhat larger advance in bank deposits, and additions to bank investments and bank loans that have together amounted to not much more than one-half of the increases in gold stocks. As a natural result of the great increases in gold holdings, and the relatively small advances in bank loans and investments, there has been a large additional increase in excess bank reserves, amounting to more than two and one-half billion dollars.

"It is noteworthy that this great additional increase in excess bank reserves has not had the effect of lifting security prices, and especially bond quotations, that has formerly been associated with important additions to bank reserves. It seems instead to have operated to sustain bond prices rather than to lift them.

DEFENSE FINANCING

"It is to be regretted, from the viewpoint of the public interest, as well as from that of the banks, that the increasing business activity of recent months should have been accompanied by only a minor increase in the volume of bank loans. In this critical period in our national life our country is undertaking a great and immensely expensive program for military and naval preparedness, at a time when we are already burdened with the greatest national debt in our history. Under these circumstances every consideration of prudent fiscal policy should lead us to finance our defense efforts to as great an extent as possible through the direct use of bank credit, and to restrict as far as we can the inevitable increases in federal indebtedness.

"Not only should we restrict as far as possible the increases in national debt by a more general use of bank credit in the financing of our defense program, but we should also pay for a larger proportion of it out of current taxation, than has as yet been officially proposed, and finance a smaller part of it by debt which will have to be paid in future years. Our national credit is a potent asset of defense not possessed in equal degree by any other nation, and under present circumstances that asset should be conserved by every device of prudent fiscal policy, and by rigid economy in the civil expenditures of government.

DEFENSE PROGRAM BANK LOANS

"The banks of this country are eager to finance, or to participate in the financing of all defense projects in their localities. They have the resources, the trained personnel, and the knowledge of their own communities, which equip them, along with the investment markets, to handle major portions of the new financing which our national preparedness program will make necessary. We urge all banks to solicit actively and energetically every sound loan in their localities that has anything to do with our program of national defense.

"In those instances in which defense projects are so large that local banks are unable to finance them in their entirety, they should nevertheless participate in the financing to the extent that they can in cooperation with the larger banking institutions of the region. In those instances in which the lending agencies of the Federal Government must be called upon, the banks should participate with those agencies in doing the financing.

BRANCH BANKING

"We reaffirm the action of the convention at Boston in 1937, and of subsequent conventions, wherein the position of the Association was stated with regard to the duel system of banking, branch banking, and the autonomy of the laws of the separate states with respect to banking and opposing any proposal or device looking to the establishment of branch banking privileges across state lines, directly or indirectly.

"We favor such action in the discretion of the officers and committees of the Association and within the scope of the Boston resolution, as will prevent any further extension of banking contrary to the above principle."

BANK LENDING ACTIVITY

A survey of bank lending activity made by the Research Council of the American Bankers Association showed that 6,500 American commercial banks, constituting 45 per cent of all banks of this type and holding approximately 80 per cent of the nation's commercial bank deposits, made a total of 13,000,000 new personal and business loans during the year 1939 in the aggregate amount of $23,700,000,000. In addition to their new loans, these banks made 12,400,000 renewal loans during 1939 in the aggregate amount of $16,300,000,000. These commercial banks also made during 1939 a total of 297,000 new mortgage loans on real estate in the aggregate amount of $938,000,000. All told, the 6,500 banks reported to the Council that they had served their customers during 1939 in nearly 26,000,000 credit transactions involving 41,000,000,000. This was at the rate of more than 2,000,000 transactions comprising $3,400,000,000 each month.

An analysis of the figures indicates that large proportions of these transactions were for relatively small amounts. The average number of new loans per bank was 2,010 and the average size of these loans was $1,815. The average number of renewal loans per bank was 1,905 and the size $1,315. The new mortgage loans averaged 45 per bank and $3,155 in amount. Since the total figures contain relatively high proportions of returns from among the larger city banks, whose credit operations include many very large transactions, the comparatively small average amounts indicated for the responding banks as a whole reflect the fact that the bulk of their loans were of modest size.

In addition to giving data as to loans made and renewed, banks granting lines of credit and having centralized information available were asked to state the total sum thereby placed at the disposal of their customers and the amount which was being availed of. This question was answered by 1,396 banks. They stated that they had granted $5,516,500,000 in open lines of which amount $1,819,600,000, or 33 per cent, was being used on Dec. 31, 1939.

Information as to the activity of mutual savings banks in the field of new mortgage loans was also obtained through two questionnaires directed to banks of this class. Returns from the first questionnaire, covering the first six months of 1939, were received from 337 institutions, or 62.1 per cent of the total number. These responding banks stated that during the first half of 1939 they had made 17,011 new mortgage loans, including FHA mortgage loans, in the total amount of $105,942,943. These figures indicate that the loans averaged $6,228 and the average number per bank was 50. Returns from a second questionnaire, covering the last six months of 1939, were received from 335 banks, or 62 per cent. They stated that, during the latter half of the year, they had made 22,809 new mortgage loans, in the total amount of $148,358,378. These figures indicate an average size per loan of $6,504 and an average of 68 per bank.

DETAILED BANK RESOURCES AND LIABILITIES

The latest available comprehensive official figures for all classes of banks, showing detailed schedules of assets and liabilities, are those given by the Comptroller of the Currency for June 29, 1940, and are as follows:

SAVINGS IN AMERICAN BANKS

The amount of savings, including time deposits and postal savings deposited in banks in the United States, increased measurably during the year ended June 29, 1940, according to reports received by the Savings Division, American Bankers Association. They rose from $25,081,000,000 on June 30, 1939 to $25,750,000,000 on June 29, 1940, an increase of $669,000,000, or 2.7 per cent. The number of savings depositors grew from 45,104,000 to 45,791,000. The gain in deposits was general throughout the United States, the percentage gain being slightest in New England which has 17.3 per cent of all the savings in banks in the country, and greatest in the east central states, which hold 18 per cent of savings and time deposits. The per capita savings for the country was $196, or $1 above 1939. The following tabulation gives the savings picture during five years:

SUMMARY OF SAVINGS DEPOSITS AND DEPOSITORS
(including Time Certificates
and Postal Savings)

Year	Total Savings Deposits (000 omitted)	Per Inhabitant Savings Deposits	Total Number Savings Depositors
1936	$23,463,585	$183	42,396,712
1937	24,491,957	191	44,226,178
1938	24,625,514	191	44,548,914
1939	25,080,947	195	45,104,425
1940	25,750,050	196	45,791,265

THE AMERICAN BANKERS ASSOCIATION

The American Bankers Association, the national organization of banking,

ASSETS AND LIABILITIES OF ALL BANKS

(Amounts in thousands of dollars)

	Total All Banks	National Banks	All banks Other Than National
Number of banks	15,017	5,170	9,847
Assets			
Loans and discounts (including rediscounts and overdrafts):			
Commercial and industrial loans	$ 6,166,400	$ 3,602,084	$ 2,564,316
Agricultural loans	1,237,551	623,189	614,362
Open-market paper	528,083	297,592	230,491
Loans to brokers and dealers in securities	481,581	168,650	312,931
Other loans for the purpose of purchasing or carrying stocks, bonds, and other securities	764,663	390,039	374,624
Real estate loans:			
On farm land	597,098	234,452	362,646
On residential properties	7,582,916	1,282,457	6,300,459
On other properties	1,077,854	485,943	591,911
Loans to banks	43,594	18,735	24,859
All other loans	4,066,865	2,070,524	1,996,341
Overdrafts	11,065	5,562	5,503
Total loans and discounts	$22,557,670	$ 9,179,227	$13,378,443
Investments:			
U. S. Government direct obligations	15,734,668	7,219,890	8,514,778
Obligations guaranteed by U. S. Government			
Reconstruction Finance Corporation	1,005,757	366,811	638,946
Home Owners' Loan Corporation	1,881,217	1,066,195	815,022
Federal Farm Mortgage Corporation	584,307	247,715	336,592
Other Government corporations and agencies	504,554	210,615	293,939
Total U. S. Government obligations, direct and guaranteed	19,710,503	9,111,226	10,599,277
Obligations of States and political subdivisions	4,230,472	1,928,352	2,302,120
Other bonds, notes, and debentures:			
U. S. Government corporations and agencies, not guaranteed by United States:			
Federal Land banks	134,974	77,757	57,217
Federal Intermediate Credit banks	168,341	91,468	76,873
Other Government corporations and agencies	165,655	93,141	72,514
Other domestic corporations:			
Railroads	1,616,517	484,534	1,131,983
Public utilities	1,167,739	346,521	821,218
Industrials	651,220	352,936	298,284
All other	237,279	83,546	153,733
Foreign—public and private	262,463	118,342	144,121
Total other bonds, notes, and debentures	4,404,188	1,648,245	2,755,943
Stocks of Federal Reserve banks and other domestic corporations	722,724	216,611	506,113
Stocks of foreign corporations	7,022	841	6,181
Total investments	29,074,909	12,905,275	16,169,634
Currency and coin	1,148,589	582,303	566,286
Balances with other banks, including reserve balances and cash items in process of collection	24,535,268	13,294,801	11,240,467
Bank premises owned, furniture and fixtures	1,239,300	597,251	642,049
Real estate owned other than bank premises	971,279	119,515	851,764
Investments and other assets indirectly representing bank premises or other real estate	155,474	65,392	90,082
Customers' liability on acceptances outstanding	100,432	42,339	58,093
Interest, commissions, rent and other income earned or accrued but not collected	154,756	58,672	96,084
Other assets (including securities borrowed, insurance and other expenses prepaid, and cash items not in process of collection)	275,952	40,305	235,647
Total assets	80,213,629	36,885,080	43,328,549

	Total All Banks	National Banks	All Banks Other Than National
Liabilities			
Demand deposits:			
Deposits of individuals, partnerships, and corporations	29,981,981	15,976,786	14,005,195
Deposits of United States Government	807,273	518,805	288,468
Deposits of States and political subdivisions	3,185,964	1,936,456	1,249,508
Deposits of banks in the United States	9,125,762	5,641,680	3,484,082
Deposits of banks in foreign countries	775,461	343,676	431,785
Total demand deposits	43,876,441	24,417,403	19,459,038
Time deposits (including postal savings):			
Deposits of individuals, partnerships, and corporations:			
Savings deposits	23,630,682	6,977,727	16,652,955
Certificates of deposits	1,220,403	533,532	686,871
Deposits accumulated for payment of personal loans	94,570	36,604	57,966
Christmas savings and similar accounts	206,100	78,792	127,308
Open accounts	674,697	249,137	425,560
Postal savings deposits	76,082	46,192	29,890
Deposits of States and political subdivisions	527,633	334,400	193,233
Deposits of banks in the United States	303,959	93,720	210,239
Deposits of banks in foreign countries	8,006	4,975	3,031
Total time deposits	26,742,132	8,355,079	18,387,053
Other deposits [certified and cashiers' checks (including dividend checks), letters of credit and travelers' checks sold for cash, and amounts due to reserve agents (transit account)]	534,885	301,925	232,960
Total deposits	71,153,458	33,074,407	38,079,051
Bills payable, rediscounts, and other liabilities for borrowed money	26,969	2,910	24,059
Acceptances executed by or for account of reporting banks and outstanding	117,220	50,641	66,579
Interest, discount, rent, and other income collected but not earned	81,155	41,376	39,779
Interest, taxes, and other expenses accrued and unpaid	102,584	49,741	52,843
Other liabilities (including securities borrowed and dividends declared but not payable)	407,116	189,564	217,552
Total liabilities	71,888,502	33,408,639	38,479,863
Capital Accounts			
Capital stock:			
Capital notes and debentures	128,171	....	128,171
Preferred stock	367,892	208,763	159,129
Common stock	2,595,730	1,325,886	1,269,844
Surplus	3,492,259	1,249,961	2,242,298
Undivided profits	1,178,771	468,203	710,568
Reserves and retirement account for preferred stock and capital notes and debentures	562,304	223,628	338,676
Total capital accounts	8,325,127	3,476,441	4,848,686
Total liabilities and capital accounts	80,213,629	36,885,080	43,328,549

including in its membership some 13,500 out of the approximately 15,000 state commercial, national and savings banks, and trust companies, held its 66th annual convention at Atlantic City in September 1940.

Chicago was designated for the holding of the 1941 convention. The general officers of the Association elected for 1940-41 were: President, P. D. Houston, Chairman of the Board, American National Bank, Nashville, Tenn.; First Vice President, H. W. Koeneke, President, The

Security Bank of Ponca City, Ponca City, Okla.; Second Vice President, W. L. Hemingway, President, Mercantile-Commerce Bank and Trust Company, St. Louis, Mo.; Treasurer, B. Murray Peyton, President, The Minnesota National Bank, Duluth, Minn.; Executive Manager, Dr. Harold Stonier, American Bankers Association, 22 East 40 Street, New York.

TRUST BUSINESS

By Gilbert T. Stephenson

The Graduate School of Banking, American Bankers Association

TRUST STATISTICS

The latest report of the Comptroller of the Currency (the 77th report covering the year ended Oct. 31, 1939) carried the following comparative picture of the trust activities of national banks in 1933 and 1939:

	June 30, 1933	June 30, 1939
National banks with trust powers	1,845	1,884
Assets of banks with trust powers	$18,320,841,438	$28,828,243,612
Banks with powers not administering trusts	367	350
Banks with powers administering trusts	1,478	1,534
Individual trusts being administered	100,356	136,451
Banks administering corporate trusts	667	790
Corporate trusts being administered	10,784	16,750
Amount of bond and note issues trusteed	$10,418,426,937	$9,768,726,724
Living trusts being administered	54,095	70,839
Court trusts being administered	46,261	65,612
Liabilities of living trusts	$5,029,485,372	$7,380,865,555
Liabilities of court trusts	$1,282,172,381	$1,903,041,721
Trust assets:		
Investments	$5,831,556,503	$7,817,871,227
Deposits in savings banks	$11,646,907	$33,014,224
Deposits in own bank	$183,621,678	$355,831,479
Deposits in other banks	$9,299,068	$15,003,510
Other assets	$275,533,597	$1,062,186,836
Gross earnings from fiduciary activities	$21,461,000	$31,685,000
Number of banks administering insurance trusts	206	343
Number of insurance trusts administered	617	1,493

The foregoing table shows a substantial increase in every phase of the trust business of national banks. The corresponding figures for the 1,383 (as of March 29, 1939) trust departments of state chartered banks and trust companies are not available. In as much as these state-chartered banks and trust companies have been engaged in the trust business much longer than the national banks and many of them are known to have a tremendous volume of trust business, it is reasonable to suppose that the growth of their trust business since 1933 has been, proportionately, as great as has been that of the national banks.

TRUST ASSOCIATIONS

The Trust Division of the American Bankers Association, with headquarters at 22 East 40th Street, New York City, which is the national association of trust institutions, has been in active operation since September 24, 1896. The 1940-41 officers of the Trust Division are President, Carl W. Fenninger, Provident Trust Company, Philadelphia; Vice President, Richard G. Stockton, Wachovia Bank and Trust Company, Winston-Salem, N.C.; Chairman Executive Committee, Louis S. Headley, First Trust Company of Saint Paul, Saint Paul, Minn.; and Secretary, Merle E. Selecman, American Bankers Association, 22 East 40th Street, New York City.

In addition to the above officers and an Executive Committee of 18 members, the Trust Division has ten standing and four special committees, the chairman of each of which for 1940-41 being as follows:

Standing committees: Costs and Charges—Henry A. Theis, vice president, Guaranty Trust Company of New York; Federal Legislation—Sidney F. Taliaferro, vice president and trust officer, The Riggs National Bank, Washington, D.C.; Fiduciary Legislation—Roy C. Osgood, vice president, The First National Bank of Chicago; Liability Insurance for Fiduciaries—Robert G. Stephens, vice president, Central Hanover Bank and Trust Company, New York City; Relations with the Bar—Raymond H. Trott, vice president, Rhode Island Hospital Trust Company, Providence, R.I.; Relations with Life Underwriters—Roy H. Booth, assistant trust officer, The National Shawmut Bank of Boston; Taxation—William A. Stark, vice president and trust officer, The Fifth Third Union Trust Company, Cincinnati, O.; Trust Education—James W. Allison, vice president, Equitable Trust Company, Wilmington, Del.; Trust Information—Towner Phelan, vice president, St. Louis Union Trust Company, St. Louis, Mo.; Trust Policies—Frederick A. Carroll, vice president and trust officer, The National Shawmut Bank of Boston.

Special committees: Common Trust Funds—Walter Reid Wolf, vice president, City Bank Farmers Trust Company, New York City; Operations for Trust Departments—Ronald M. Kimball, secretary, Continental Illinois National Bank and Trust Company, Chicago; Trust Department Personnel Nomenclature—Frank G. Sayre, vice president, Pennsylvania Company for Insurances on Lives and Granting Annuities, Philadelphia; Trust Investments—C. Alison Scully, vice president, Bank of the Manhattan Company, New York City.

TRUST COSTS

In the spring of 1940 the Committee on Costs and Charges of the Trust Division issued a recommended system for determining the cost of a personal trust account (*Guide to Trust Fees,* Revised 1940, Trust Division, American Bankers Association, pp. 45-52). The real significance of this is that now for the first time it is possible on a nationwide scale to make a comparative study, account by account, of the cost of rendering trust service. This should do much to put trust compensation on a scientific basis and to take it out of the realm of custom or tradition where it has been heretofore throughout the entire history of trust business in the United States. This progressive step should prove to be equally to the advantage of all three of the principal parties to the trust business, namely, the customer, the beneficiary, and the trust institution.

TRUST POLICIES

In 1933 the trust institutions of the United States established one milestone in their progress by adopting a Statement of Principles which already is accepted generally as their code of ethics in the conduct of trust business.

Again in 1940 trust institutions perhaps set up a second milestone when on Sept. 23 they adopted a Statement of Policies for the Acceptance of Trust Business. This Statement is composed of four articles which cover such topics as the propriety of the purposes of the proffered account, the characteristics of the parties at interest, the nature of the trust property, the workability of the trust instrument, the qualifications of the trust institution, the basis of compensation, the size of the account, estate plans, lawyer-client and life underwriter relationships. It covers the practical points on which the customer and his attorney would need to be advised.

This Statement of Policies is of fully as much interest and concern to trust customers and their attorneys as to trust institutions. The Statement was published in the *Trust*

Bulletin and in *Trusts and Estates* in November 1940, and a copy of it may be obtained from a local trust institution or direct from the Trust Division, American Bankers Association, 22 East 40th Street, New York City.

COMMON TRUST FUNDS

In the development of trust business, the year 1940 was notable for the establishment of common trust funds. The year marked the end of the first decade of common trust funds in the United States. The first common trust fund in this country was City Farmers Fund (C) Inc., established by the City Bank Farmers Trust Company of New York City on May 1, 1930.

As far as common trust funds are concerned, the years between 1930 and 1940 were largely a period devoted to the laying of foundations. During this period the necessary enabling regulations and statutes were adopted. A few trust institutions established common trust funds and thereby did the pioneering and the experimenting necessary to prove the practical value and workability of the collective investment of trust funds. During the latter part of 1939 and throughout 1940, one trust institution after another, particularly in Pennsylvania, established common trust funds. The following is a list of the common trust funds known to have been established during this period:

1. Oct. 13, 1939—Common Trust Fund A, Security National Bank and Trust Company, St. Louis.
2. Dec. 1, 1939—Diversified Trust Fund A, Girard Trust Company, Philadelphia.
3. Dec. 1, 1939—Diversified Trust Plan B, Girard Trust Company, Philadelphia.
4. June 10, 1940—Common Trust Fund A, Peoples-Pittsburgh Trust Company, Pittsburgh.
5. July 1, 1940—Discretionary Common Trust Fund, The Pennsylvania Company for Insurance on Lives and Granting Annuities, Philadelphia.
6. Aug. 1, 1940—Discretionary Common Trust Fund, Fidelity-Philadelphia Trust Company, Philadelphia.
7. Nov. 1, 1940—Discretionary Common Trust Fund, Provident Trust Company, Philadelphia.

More than half of the presently active common trust funds were established between October 1939 and November 1940. It is known that still others are in process of establishment.

The basic needs for the common trust fund have been listed as follows: From the point of view of the bank or trust company, a common trust fund (1) reduces the cost of investment supervision, (2) enables it to provide adequate diversification for small accounts, (3) enables it to invest small amounts promptly, (4) enables it to make periodic distributions of principal without having to keep any considerable amount of trust funds uninvested, and (5) in general, enables it to handle small accounts more profitably and economically. From the point of view of the beneficiary, a common trust fund (1) provides the same degree of diversification and other investment advantages, proportionately, for a small trust as for a large one, (2) tends to stabilize both principal and income, and (3), in general, helps to make trust service available to the person of small estate.

TRUST LITERATURE

To the library of trust literature three additions were made during the year. *Trust Business in Common Law Countries,* a 911-page volume of comparative studies of trust business in all the common law countries, was published by the Research Council of the American Bankers Association. The main thesis of this volume is that there is a common law system of trust business basically similar throughout the English-speaking world. Mayo A. Shattuck's revised and enlarged edition (a fifth edition) of Augustus Peabody Loring's *A Trustee's Handbook,* was published by Little, Brown and Company, Boston. Loring's *Hand-*

book, first published in 1898, already has become one of the classics of trust literature. Walter W. Land's *Trusts in the Conflict of Laws* was published by Baker, Voorhis, and Company, New York. In the light of several recent United States Supreme Court decisions this is a volume of special timeliness.

TRUST CONFERENCES

The 21st Mid-Winter Trust Conference was held in New York City, Feb. 13-15, 1940; the 18th Regional Conference of the Pacific Coast and Rocky Mountain States, in Salt Lake City, Utah, Aug. 15-17, 1940; and the Mid-Continent Trust Conference, in Chicago, Nov. 7-8, 1940.

FOREIGN EXCHANGE

By Marcus Nadler

Professor, New York University

THE WAR'S EFFECT ON THE MARKET

The year 1940 was a momentous one. It witnessed the disappearance, temporarily at least, of such countries as Norway, Denmark, Holland, Belgium, and France, developments which naturally had their effect on the foreign exchange market of the United States. With the occupation of these countries, their currencies ceased to be traded in New York, and today the number of exchanges traded in the American markets is restricted to a few. They embrace the currencies of England, Sweden, Switzerland, Finland, and Greece, but even in these countries exchange restrictions exist and trading in these exchanges is limited.

NARROWED TRADING IN STERLING

As far as Great Britain is concerned, there are still two quotations for the pound, namely, the "official" rate which was fixed at the outbreak of the war at $4.03½ and the "unofficial" rate which has fluctuated. However, as a result of the drastic foreign exchange restrictions imposed by the British Government, trading in the free exchange has been greatly narrowed so that today practically all transactions are carried out at the official rate. The movement of the free pound during 1940 may be seen from the following table:

(In cents per foreign unit of currency)

1940	British Pound Free Rate
January	396.39
February	396.34
March	375.91
April	352.59
May	327.36
June	360.16
July	380.47
August	397.88
September	403.42
October	403.26
November	403.56

OTHER EUROPEAN EXCHANGES

Although the German mark, the Italian lira, the Hungarian pengo, the Yugoslav dinar, and the Russian rouble are still quoted in the American market, their quotation is quite nominal. Exchange restrictions in these countries are exceedingly rigid, and practically all transactions with the United States are carried out either on a dollar basis or in those currencies at a rate substantially lower than the official quotation. As far as Germany is concerned, several rates for the mark exist, and the same applies to a minor extent to the Italian currency. For all practical purposes, the market for the exchange of these countries is non-existent.

THE BRITISH EMPIRE

One of the outstanding developments during the year is the strengthening of the sterling bloc embracing the currencies of all British countries with the exception of the Canadian dollar. In fact, for international purposes the currencies of the sterling area may be considered as one, since most international transactions are effected through the pound sterling. All financial transactions between Great Britain and the dominions and colonies do not involve any transfer of foreign exchange, but are paid for entirely in sterling. These transactions have offered an example of how currencies of a number of countries can be kept perfectly stable without the movement of gold.

CANADA

In Canada, two exchange rates also exist, namely, the "official" and the "unofficial" one. The "official" rate has been fixed at .90909, while the "unofficial" rate has fluctuated, as may be seen from the table below:

(In cents per foreign unit of currency)

1940	Canada Dollar Free Rate
January	88.018
February	86.654
March	82.883
April	84.238
May	80.970
June	80.072
July	86.924
August	86.865
September	85.469
October	86.318
November	86.922

Thus far, in spite of the large purchases which the Canadian Government has made in the United States, no transfer problem has developed in the Dominion and no great difficulties in this respect are anticipated in the future. This is primarily due to the fact that the production of gold in Canada is steadily increasing, and the shipment of gold to the United States is one of the most important factors in maintaining the stability of the Canadian dollar in relationship to the American currency.

LATIN AMERICA

The Latin American currencies during 1940 have remained more or less stable and fluctuated within narrow ranges, as may be seen from the following table below;

The stability of the Latin American currencies is due to two factors, namely, the exchange restrictions which have been in existence for a number of years and the aid obtained from the United States Government. The war has had an adverse effect on economic conditions of the various Latin American countries. As a result of the blockade and shipping difficulties, their exports to Europe have decreased materially. Unable to obtain the necessary manufactured goods in Europe, most of the Latin American countries have been forced to turn to the United States, with the result that their trade with this country has increased. The resultant

LATIN AMERICAN CURRENCIES EXCHANGE RATES

(In cents per unit of foreign currency)

1940	Argentina Peso	Brazil Milreis		Chile Peso		Colombia Peso	Uruguay	
		Official	Free	Official	Export		Controlled	Uncontrolled
January	29.772	6.0562	5.0132	5.1670	4.0000	57.205	65.830	36.360
February	29.773	6.0569	5.0237	5.1655	4.0000	57.264	65.830	37.466
March	29.773	6.0574	5.0269	5.1650	4.0000	57.130	65.830	38.839
April	29.773	6.0576	5.0291	5.1649	4.0000	56.990	65.830	39.090
May	29.773	6.0488	5.0232	5.1670	4.0000	57.046	65.830	38.603
June	29.773	6.0527	5.0329	5.1678	4.0000	57.220	65.830	37.714
July	29.773	6.0575	5.0259	5.1678	4.0000	57.096	65.830	35.956
August	29.773	6.0575	5.0219	5.1680	4.0000	56.985	65.830	34.939
September	29.773	6.0574	5.0107	5.1680	4.0000	56.985	65.830	36.366
October	29.773	6.0575	5.0153	5.1680	4.0000	56.985	65.830	37.629
November	29.773	6.0575	5.0156	5.1663	4.0000	57.0001	65.830	38.9939

large excess of exports over imports in favor of the United States has created a foreign exchange shortage in most of the Latin American nations. To meet this shortage, the Export-Import Bank has granted loans to a number of Latin American countries. Furthermore, the resources of the Export-Import Bank during the last year were raised by $500,000,000 in order to enable the United States Government to render more effective assistance to the Latin American countries. So long as this assistance is forthcoming, the various Latin countries will be in a position to maintain the stability of their currency in relationship to the dollar. The Inter-American Bank which was the subject for discussion during the early part of the year and which it was hoped would become a powerful instrument in the exchange market between the United States and the various Latin American countries did not materialize.

THE FAR EAST

The currencies in the Far East during 1940 were marked by the fluctuation of the Chinese dollar and by the stability of the Japanese yen. Both currencies, however, are surrounded with rigid exchange restrictions. As far as the Chinese dollar is concerned, the Secretary of the Treasury only recently announced that a credit of $50,000,000 has been opened through the Stabilization Fund in order to enable the national government of China to maintain the stability of the currency. Japan, on the other hand, maintained the stability of the yen primarily through the shipment of gold. The outlook for the Japanese currency is clouded and will depend to a very large extent upon broad political developments, and particularly upon the relations between Japan and the United States.

GOLD MOVEMENTS

The year 1940 was again marked by heavy imports of gold into the United States. Total imports for the first eleven months of the year were estimated at $4,607,297,000. By the end of December 1940 the United States had a monetary stock of gold of about $22,000,000,000 as compared with $17,644,000,000 at the end of 1939 and $8,238,000,000 at the end of 1934.

The huge increase of gold in the United States is naturally causing a great deal of concern to the monetary authorities. Various measures have been suggested to sterilize the yellow metal, but so far none of these has actually been adopted.

The production of gold throughout the world has also increased. In many countries the governments are granting subsidies to gold producers, and the high price of gold, since it was not accompanied by a corresponding increase in prices of commodities, is leading not merely to the opening of new gold mines but also to the working of high-cost producers. The output of gold in 1940 has reached a new peak, and all indications are to the effect that the 1941 output will show a further increase.

As in the past, rumors of a further devaluation of the dollar and of placing an embargo against the importation of gold have cropped up during the year. Under conditions as they exist at present, however, it seems quite certain that the President of the United States will not utilize the power vested in him to devalue the dollar and further increase the price of gold. The dollar in the United States was devalued in the hope that it would bring about an increase in prices of commodities, thereby stimulating the national economy of the country.

At present, however, as a result of the rearmament program, industrial activity in the United States is at a high level and a further increase is to be expected in 1941. Furthermore, the problem concerning prices in the United States has undergone a complete change. Whereas until the beginning of 1940 the main problem confronting the nation was how to prevent a decline in commodity prices, at present one of the major problems that confronts the nation is how to prevent commodity price inflation. In view of this situation and in view of the fact that the amount of gold in the United States is very large and the excess reserve balances already amount to $1,500,000,000, a further devaluation seems entirely out of the question.

There is also very little likelihood of the United States' placing an embargo on gold. Gold shipments are one of the most important means through which the British Empire makes payments to this country. To place an embargo on the yellow metal, therefore, would be considered as an unfriendly act to the British Empire. It is, however, likely that during 1941 ways may be found to prevent the inflow of gold to this country from creating new reserve balances. The suggestion that has been made, that the United States lend money to Great Britain, not only on available but also on gold to be mined by the British Empire in the future is a sound one and may receive more careful consideration.

THE EXCHANGE OUTLOOK

The outlook for the foreign exchange market is dark and will depend to a very large extent upon military and political developments in Europe. The great question confronting the foreign exchange market is not so much what the exchanges will do during the war as rather whether once the hostilities are over the world at large will return to sound currency conditions and to an international standard. A great deal has been written about this subject. However, it is obvious that the future of the currency standards of the various countries will depend to a very large extent, if not exclusively, upon the outcome of the war.

In case of a British victory and the restoration of a just economic and political peace in the world, cooperation on the part of the United States may be expected, and under such circumstances a return to an international currency standard is quite likely. On the other hand, if Germany should win or if the treaty of peace concluded should be merely an armed truce, then it is obvious that a return to an international standard will be impossible, and under such circumstances the place of gold as a basis of currency and credit or even as a means of settling international balances may be in jeopardy.

FOREIGN TRADE

By Roland L. Kramer

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EXPORT TRADE FOR TEN MONTHS 1940

Total exports for the first ten months of 1940 were valued at $3,374,000,000 which was an increase of 34% over the corresponding period of 1939. General imports, at $2,149,000,000, represented an increase of 17%. The export merchandise balance of trade amounted to $1,225,000,000. The expansion in both exports and imports was carried through each month of the 1940 period compared with the corresponding month of 1939, the sole exception being imports in October 1940.

Gold (net) imports continued to reach astronomical figures, amounting to $4,277,000,000. In June, 1940, receipts of the yellow metal exceeded $1,000,000,000. Silver receipts were somewhat less at a value of $46,000,000 compared with $64,000,000 in a like period of 1939.

X. BUSINESS AND FINANCE

EXPORTS, IMPORTS, AND BALANCE OF TRADE OF THE UNITED STATES

[Values in millions of dollars. Data cover years ended June 30 through 1915; thereafter, calendar years]

Yearly Average or Year	Merchandise						Excess of Exports (+) or Imports (−)			
	Exports			General Imports	Imports for Consumption	Per cent General Imports Were of Total Exports	Merchandise	Gold	Silver	Merchandise, Gold, and Silver
	Total	United States Merchandise	Re-exports of Foreign Merchandise							
1876–80 . .	677	664	13	493	482	72.8	+184	−12	+9	+182
1881–85 . .	792	775	17	667	663	84.2	+125	−21	+11	+114
1886–90 . .	738	726	13	717	702	97.1	+21	+3	+13	+38
1891–95 . .	892	876	16	785	769	88.0	+107	+38	+20	+165
1896–1900	1,157	1,136	21	742	730	64.1	+416	−24	+27	+419
1901–5 . . .	1,454	1,427	27	972	957	66.9	+482	+1	+23	+506
1906–10 . .	1,779	1,751	28	1,345	1,328	75.6	+434	−15	+14	+433
1911–15 . .	2,371	2,332	39	1,712	1,698	72.2	+658	−3	+23	+678
1910–14 . .	2,166	2,130	35	1,689	1,678	78.0	+477	+17	+20	+515
1913[1]	2,484	2,448	36	1,793	1,767	72.2	+691	+28	+27	+746
1915–20[2] .	6,521	6,417	105	3,358	3,289	51.5	+3,163	−149	+79	+3,093
1921–25 . .	4,397	4,310	87	3,450	3,423	78.5	+947	−265	+10	+692
1926–30 . .	4,777	4,688	89	4,033	4,020	84.4	+744	−33	+19	+729
1931–35 . .	2,025	1,989	36	1,713	1,704	84.6	+312	−480	−94	−262
1929	5,241	5,157	84	4,399	4,339	83.9	+842	−175	+19	+686
1930	3,843	3,781	62	3,061	3,114	79.6	+782	−280	+11	+514
1931	2,424	2,378	46	2,091	2,088	86.2	+334	−145	−2	+186
1932	1,611	1,576	35	1,323	1,325	82.1	+288	+446	−6	+729
1933	1,675	1,647	28	1,450	1,433	86.5	+225	+173	−41	+358
1934	2,133	2,100	33	1,655	1,636	77.6	+478	−1,134	−86	−742
1935	2,283	2,243	40	2,047	2,039	89.7	+235	−1,739	−336	−1,839
1936	2,456	2,419	37	2,423	2,424	98.6	+33	−1,117	−171	−1,254
1937	3,349	3,299	50	3,084	3,010	92.1	+265	−1,586	−80	−1,400
1938	3,094	3,057	37	1,961	1,950	63.4	+1,134	−1,974	−223	−1,063
1939	3,177	3,124	53	2,318	2,276	73.0	+859	−3,574	−71	−2,786

[1] Data are for calendar year, except imports for consumption, which are for the year ended June 30, 1913.

[2] Period July 1, 1915, to December 31, 1920.

EXPORT COMMODITY CHARACTERISTICS, TEN MONTHS 1940

General.—The commodity characteristics of both the export and import trades revealed the effect of the rearmament program of the United States and the efforts to aid embattled democracies. All changes in commodity characteristics were overshadowed by the enormous expansion in exports of semi-manufactures and of finished manufacturers; and, to a less degree, by increases in imports of crude materials and of semi-manufactures. Foodstuffs, crude and manufactured, both export and import, declined.

Finished Manufactures.—Shipments of finished manufactures advanced 43% to record a value of $1,904,000,000, comprising 57.7% of total exports. Machinery was still the leading export commodity, the value of $543,700,000 being 30% in excess of the corresponding period of 1939. Industrial machinery accounted for most of this increase; the value of exports of industrial machinery was $358,300,000. Aircraft, parts and accessories, rose from $82,200,000 to $252,900,000. Refined petroleum products fell to $208,000,000 due to a decline in shipments of gasoline; lubricating oil increased. Automobiles, parts and accessories receded somewhat with a value of $203,000,000. Passenger car shipments fell drastically but motor trucks and buses improved. All other important finished manufactured items showed an increase. Marked advances were recorded in shipments of paper and manufactures, the value of $55,900,000 being more than double the figure for the corresponding ten months of 1939. Explosives, fuses, etc. were infinitely greater at $18,200,000, as were firearms and ammunition at $51,300,000. Cotton manufactures, including yarn, were up nearly 20% to $63,800,000. Iron and steel advanced manufactures improved 35% to $53,400,000. Rubber manufactures, $35,600,000; medicinal and pharmaceutical preparations, $24,100,000; rayon manufactures, $13,500,000; and scientific and professional instruments, $13,500,000, all revealed increases.

Semi-manufactures recorded the greatest advance of all, improving 61% to $771,000,000 and comprising 23.4% of total against 19.2% in the corresponding 1939 period. Iron and steel mill products, at $427,600,000, gained 145%. Non-ferrous metals (copper, brass and bronze, aluminum) increased 66% to $186,200,000. Chemical and related products, at $185,700,000 were up 45%. Sawmill products declined to $31,200,000. Naval stores and resins, at $10,500,000, were somewhat lower, as was leather at $9,600,000.

Crude materials recorded a slight increase, with $413,200,000 and comprised 12.5% of total exports against 16.3% in the corresponding 1939 period. Raw cotton shipments advanced 20% to $201,000,000. Coal was up nearly 50% to $72,400,000. Crude petroleum decreased 25% to $60,200,000. Unmanufactured tobacco declined nearly 50% to $37,700,000. Undressed furs were slightly improved at $9,400,000.

Foodstuffs.—Both foodstuffs groups revealed a reduction in the export trade. Manufactured foodstuffs and beverages, with 4.4% of total, fell to a value of $146,000,000. Crude foodstuffs declined one-third to $67,000,000 which represented only 2% of total. The only foodstuffs that showed an increase were corn, at $25,100,000, an increase of two-thirds; dairy products, except fresh milk, $14,000,000, a rise of over 100%; fish, $14,800,000, up 40%; sugar and related products, $16,000,000, a gain of 75%. However, the leading foodstuffs item, packing-house products, declined nearly one-third to $32,200,000. Fruits and nuts, at $30,700,000, were down 60%. Wheat flour decreased 15% to $17,600,000. Wheat receded 70% to $10,600,000.

IMPORT COMMODITY CHARACTERISTICS

Crude Materials.—In the import commodity trade, crude materials increased its proportion of the total to 38.7% and, with an advance of 38%, recorded a value of $806,000,000. Our leading imported commodity, crude rubber, gained 86% to reach a value of $251,700,000. Raw silk showed a slight improvement at $96,100,000. Wool and mohair, unmanufactured, expanded 70% to a value of $64,000,000. Undressed furs rose 45% to $58,400,000. Hide and skins advanced more modestly to $41,000,000. Unmanufactured tobacco, at $31,200,000 was slightly improved, as were oilseeds, mostly flaxseed, at $28,200,000. Ferro-alloys were more than double the corresponding value of the preceding ten months period of 1939, the figure being $27,700,000. Crude petroleum moved up one-third to $25,600,000. Crude diamonds gained nearly one-half to record a value of $18,800,000 and, with a similar expansion, "other" textile fibres reached $18,200,000.

Semi-manufactures in the ten months of 1940 gained 21% to a value of $462,300,000 and comprised 22.2% of total imports. Tin bars, blocks and pigs led all items in this group, showing an improvement of 100% to reach a value of $101,800,000. Paper base stocks, mostly wood pulp, were lower at $65,100,000. Furs and manufactures gained nearly one-half at $63,500,000. Copper, mostly for refining and re-export, rose over 80% to $57,400,000. Vegetable oils, expressed, at $51,400,000 were up 25%. Chemicals and related products declined 25% to $50,800,000. Nickel and alloys advanced 40% to $28,000,000. Diamonds, cut but unset, were down to $17,300,000. Sawed boards, sidings and lumber improved to $17,000,000.

Finished Manufactures.—Imports of finished manufactures were reduced in comparison with the figures for the first ten months of 1939. At $344,100,-

FOREIGN TRADE IN MERCHANDISE, BY ECONOMIC CLASSES

[Values in millions of dollars. Import data are "general" imports through 1933, except 1933 in italics; the latter and succeeding years are "imports for consumption." Data cover years ended June 30 for 1910–14, all other are calendar years]

Yearly Average or Year	Total Value	Crude Materials		Crude Foodstuffs		Manufactured Foodstuffs[1]		Semi-Manufactures		Finished Manufactures	
		Value	Per Cent	Value	Per Cent	Value	Per Cent	Value	Per Cent	Value	Per Cent
EXPORTS											
1910–14	2,130	713	33.5	127	5.9	295	13.8	342	16.0	654	30.7
1913	2,448	777	31.7	170	6.9	325	13.3	397	16.2	780	31.9
1921–25	4,310	1,187	27.5	420	9.7	601	13.9	537	12.5	1,566	36.3
1926–30	4,688	1,144	24.4	300	6.4	456	9.7	663	14.1	2,126	45.3
1931–35	1,989	601	30.2	77	3.9	176	8.8	289	14.5	847	42.6
1929	5,157	1,142	22.2	270	5.2	484	9.4	729	14.1	2,532	49.1
1930	3,781	829	21.9	179	4.7	363	9.6	513	13.6	1,898	50.2
1931	2,378	567	23.8	127	5.3	247	10.4	318	13.4	1,120	47.1
1932	1,576	514	32.6	89	5.7	152	9.7	197	12.5	624	39.6
1933	1,647	591	35.9	48	2.9	155	9.4	237	14.4	617	37.4
1934	2,100	653	31.1	59	2.8	168	8.0	342	16.3	879	41.8
1935	2,243	683	30.4	59	2.6	157	7.0	350	15.6	994	44.3
1936	2,419	668	27.6	58	2.4	144	5.9	395	16.3	1,154	47.7
1937	3,299	772	21.9	105	3.2	178	5.4	678	20.6	1,617	49.0
1938	3,057	594	19.4	249	8.1	184	6.0	506	16.5	1,523	49.8
1939	3,123	528	16.9	111	3.6	202	6.5	615	19.7	1,667	53.4
IMPORTS											
1910–14	1,689	595	35.2	203	12.0	194	11.5	307	18.2	389	23.1
1913	1,793	620	34.6	221	12.3	198	11.1	340	19.0	413	23.1
1921–25	3,450	1,290	37.4	383	11.1	448	13.0	609	17.7	720	20.9
1926–30	4,033	1,484	36.8	507	12.6	398	9.9	762	18.9	882	21.9
1931–35	1,704	493	28.9	266	15.6	234	13.7	319	18.7	393	23.0
1929	4,399	1,559	35.4	539	12.2	424	9.6	885	20.2	994	22.6
1930	3,061	1,002	32.7	400	13.1	293	9.6	608	19.9	757	24.7
1931	2,091	642	30.7	305	14.6	222	10.6	372	17.8	549	26.3
1932	1,323	358	27.1	233	17.6	174	13.2	217	16.4	341	25.7
1933	1,450	418	28.8	[2]216	14.9	[2]201	13.9	292	20.1	322	22.2
1933[3]	*1,433*	*420*	*29.3*	*215*	*15.0*	*191*	*13.3*	*290*	*20.2*	*317*	*22.1*
1934	1,636	461	28.2	254	15.5	264	16.1	307	18.8	350	21.4
1935	2,039	582	28.6	322	15.8	319	15.6	410	20.1	406	19.9
1936	2,424	733	30.2	349	14.4	386	15.9	490	20.2	466	19.2
1937	3,010	971	32.3	413	13.7	440	14.6	634	21.1	551	18.3
1938	1,950	576	29.6	260	13.3	311	15.9	385	19.7	418	21.4
1939	2,276	745	32.7	291	12.8	313	13.8	487	21.4	440	19.3

[1] Includes beverages.
[2] Revised.
[3] See headnote.

000, this group comprised 16.5% of total compared with 19.9% in the prior period. Newsprint gained 10% to $103,300,000. Burlaps advanced 80% to $39,600,000. Cotton manufactures were nearly one-fourth less, at $23,900,000. Manufactures of flax, hemp or ramie were down 12% to $15,500,000; and at the same value, wool manufactures showed no change. Works of art were valued at $11,000,000, a reduction of 25%.

Foodstuffs.—Receipts of foodstuffs, both crude and manufactured, were somewhat less. The value of the two groups was $236,500,000 and $235,600,000, respectively; and each group comprised 11.3% of total. Manufactured foodstuffs suffered almost all of the reduction, this group declining 10%. Our leading foodstuff import was coffee, down somewhat from the preceding ten months period and recording a value of $105,000,000. Cane sugar was down slightly to $101,300,000. Fruits and nuts advanced modestly to $50,200,000, as did wines and spirits, at $41,100,000. Cocoa and cacao beans, at $26,200,000, were over 10% greater. Tea also gained about 10%, the value of imports being $18,600,000. Packing-house products and fish, including shellfish were both lower, with values of $15,500,000 and $13,900,000, respectively.

GEOGRAPHICAL DISTRIBUTION OF EXPORT TRADE

Europe.—All continents shared in the 34% advance in exports during the first ten months of 1940 in comparison with the same period of 1939. Europe took $1,412,200,000 worth of United States merchandise, representing an increase of 37.6%. The direction of trade with Europe was dictated clearly by the course of the war. Shipments to our leading market, the United Kingdom, gained 90% to reach a value of $805,800,000. France showed a rise of nearly 100% to $252,800,000. The U. S. S. R. took 90% more of United States goods, with a value of $70,400,000. Italy showed a modest advance of 18% to $52,100,000, since shipments could not reach Italy after the entrance of that country into the war. Sweden and The Netherlands were down more than 50%, the values being $36,400,000 and $34,200,000, respectively. Spain rose over 50% to $25,800,000. Belgium fell more than 50% to $25,000,000. Finland and Portugal advanced 100%, to $22,200,000 and $15,200,000, respectively. Switzerland, at $20,300,000, gained 75%. Norway receded 42% to $14,800,000, and Germany was out of the market.

Latin America.—Shipments to Latin America improved 31% to record a value of $639,700,000. Argentina was the leading Latin American market, with a gain of nearly 100%, the value being $96,200,000. Brazil was up 50% to $89,700,000. Mexico improved nearly 20% to $76,600,000. Cuba increased slightly to $68,700,000. Venezuela rose 23% to $59,200,000. Colombia, with an increase of 5%, recorded a value of $42,400,000. Chile advanced 80% to $35,000,000. Peru gained 30% to $18,700,000 and Uruguay, with $9,000,000 was improved 150%.

Northern North America, almost entirely Canada, expanded 48.5% the value being $597,600,000, of which Canada accounted for $588,500,000.

Asia recorded the most modest advance of any of the continents, gaining 18% to a value of $519,000,000. Japan showed a gain of only 7% to $191,400,000. The Philippines, at $80,500,000, were the same as in the corresponding ten months period of 1939. China rose 70% to $67,900,000. British India was up 80% to $55,100,000. Netherlands India advanced 50% to $41,600,000.

Africa.—Exports to Africa gained one-third to record a value of $127,100,000. The Union of South Africa improved 45% with a value of $81,000,000 and Egypt advanced nearly 50% to a value of $16,400,000. Shipments to Oceania were 25% greater, the value being $78,200,000. Australia accounted for the bulk of this amount, receiving $62,300,000 worth of United States merchandise, which was an increase of 26%. New Zealand, at $15,100,000, was only 6% greater.

GEOGRAPHICAL DISTRIBUTION OF IMPORT TRADE

Increases General.—The distribution of our import trade in the first ten months of 1940 followed closely the pattern set by the changes in the commodity characteristics of the import trade. The increase of 17% in general imports was shared by all continents except Europe; and sources of basic and strategic raw materials that figured so prominently in the import trade shared generously in the increase. Asia was the leading continental source in the ten months period of 1940, supplying merchandise worth $792,700,000 which was 48% greater than during the corresponding period of 1939. British Malaya was our leading source of imports, with $217,700,000, a gain of 100%. Netherlands Indies advanced more than 100% to $136,600,000. Japan, with $122.600,000, declined slightly. British India improved 63% to $88,000,000 and China was up 67% to $77,600,000. Philippine Islands recorded a reduction of 4% to $76,100,000. Ceylon gained 37% to $22,700,000. Turkey increased 16% to $12,400,000.

Latin America was the second source of imports, supplying goods valued at $539,500,000, an improvement of 22%. Cuba gained slightly, at $94,100,000. Brazil was slightly less, the value being $82,900,000. Argentina showed an increase of 40%, with $64,800,000. Mexico was up 45% with a value of $65,200,000. Chile gained nearly 100% to $53,800,000. Colombia improved slightly to $39,500,000. Venezuela advanced 63% to $31,200, 000. Netherlands West Indies showed a slight increase, the value being $18,400,000. Peru, at $14,500,000, was up 40%. Uruguay gained nearly 90% to record a value of $13,400,000.

Northern North America improved 24.6% to reach a value of $349,400,000 of which all but $10,000,000 was accountable to Canada.

Europe reflected the progress of the war and, by the end of October 1940, imports from that continent with a value of $338,900,000 indicated a reduction of 32% in comparison with the corresponding ten months period of 1939. The United Kingdom increased sales to the United States by 9%, supplying imports worth $131,000,000. Only Portugal and Spain, of all other major countries in Europe, recorded an advance. Imports from Portugal, at $8,100,000, were up 90%; and from Spain, at $11,800,000 were up 53%. Countries like Italy, France, U. S. S. R. and Greece revealed reductions of between 19% and 34%. Switzerland, at $22,900,000 was only slightly less. Other countries, like The Netherlands, Norway, Sweden, Belgium, and Finland showed drastic reductions of from 50% to 75%. Denmark and Germany, as the statistics covering trade to the end of October 1940 indicate, had practically disappeared from the trade picture. By this time, only Portugal, Spain, and the United Kingdom were reasonably free to trade with the United States; and Greece was still in the picture.

Africa.—Imports from Africa recorded the largest proportionate gain; at $104,300,000, the improvement was 82%. South Africa advanced over 100% to $40,100,000; and the Gold Coast, with a somewhat better improvement, recorded $13,100,000. Iran shared in this remarkable increase, and imports from Egypt were also somewhat greater. Oceania recorded a gain of 10%, imports showing a value of $23,700,000. Australia, with $16,300,000, was up 45%, but New Zealand, at $6,500,000, declined about one-third.

COMMODITY CHARACTER OF 1939 EXPORTS

Finished manufactured goods increased 9.4% in value and 10.3% in quantity to lead all commodity export groups; and comprised 53.4% of the total compared with 49.8% in 1938. Exports of machinery exceeded the 1938 figure by 3.2% and recorded a value of $502,100,000, thus constituting again the leading exported commodity. Industrial machinery, at $289,900,000, showed an improvement of 7.4%. Electrical machinery and apparatus advanced 3.0% to a value of $105,300,000 while exports of agricultural machinery and implements declined 9.2% to $68,500,000.

Automobiles, parts and accessories declined 6.2% to a value of $253,700,000, with exports of passenger cars receding 15.5% to $84,700,000 and motor trucks 3.7% to a value of $69,500,000. Shipments of refined petroleum products advanced 8% to a value of $213,000,000 (compared with a revised figure of $196,500,000 for 1938). Exports of gasoline dropped 9.3% in volume and 6.3% in value to $97,000,000; lubricating oil increased 26.1% in quantity and 31.2% in value to $90,400,000; gas and fuel oil declined by 5% to $54,400,000; and illuminating oil, at $15,800,000 was slightly less.

Aircraft, parts and accessories again revealed strength, increasing 72.7% to $117,800,000. Cotton manufactures, including yarn, improved 19.9% to $68,300,000. Iron and steel advanced manufactures gained 15.1% to a value of $49,800,000. Rubber manufactures also advanced strongly by 44.8% to $39,400,000; automobile casings, at $16,300,000, showed a gain of 44.5% and the quantity was 39.1% greater. Paper and manufactures rose 22.5% to $31,700,000; medicinal and pharmaceutical preparations increased 31% to $22,300,000; books and other printed matter declined 3.3% to $22,200,000; photographic and projection goods fell 4.0% to $19,100,000; rayon and other synthetic fibres expanded 38.6% to $15,300,000; scientific and professional instruments gained 8% and were valued at $12,700,000; soap and toilet preparations improved 3% to $10,300,000; and paints and varnishes, at $9,100,000, were up 12%. Glass and glass products increased 25% to $10,400,000.

Semi-manufactures showed the greatest improvement of any of the export commodity groups. Shipments of semi-manufactured goods increased 21.5% to a value of $615,000,000 and the quantity was 21.7% greater. The group comprised 19.7% of total exports compared with 16.5% in 1938. Iron and steel mill products advanced 27.9% to $235,700,000. Copper gained 1.3% in quantity and 12% in value to $97,200,000. Chemicals increased 34.8% to record a value of $109,400,000. Sawmill products improved 9.5% to $41,200,000. Aluminum shipments gained more than 400% to record a value of $20,900,000. Ferro-alloys advanced 35.9% to $19,300,000. Naval stores, gums, and resins improved 22.4% to $15,100,000; leather was up 8% to $13,000,000; and furs and manufactures declined again by 20% to a value of $11,300,000.

Crude Materials.—Exports of crude materials, declining 9.6% in volume and 11.1% in value to $528,000,000, comprised 16.9% of the total, compared with 19.4% in 1938. Raw cotton shipments recorded modest gains of 4.9% in quantity and 6.3% in value, at $243,000,000. Crude petroleum, at $92,800,000, was down 16.9% in value and 6.7% in quantity. Unmanufactured tobacco, at $77,400,000, revealed a recession of 50.3% and the volume was 26.7% less. Coal and coke advanced 14.6% in tonnage and 19.3% in value to $66,700,000.

Manufactured foodstuffs including beverages, with 6.5% of total exports advanced 18% in volume and 10% in value to $202,000,000. The quantity of packing-house products was 33.7% greater and the value improved 14.1% to $54,800,000. (Meat products rose 11.5% to $31,700,000 and lard gained 10.5% to record a value of $20,200,000.) Canned fruits increased 8% to $25,100,000. Wheat flour exports rose 6% to $24,600,000. Vegetables, fresh and dried improved 37% to $10,600,000. Canned fish, at $11,600,000, was slightly more.

Crude foodstuffs suffered a severe decline of 46.9% in volume and 55.5% in value to $111,000,000, representing only 3.6% of total exports compared with 8.1% in 1938. Fruits and nuts, other than canned, decreased 23.4% to $58,100,000; dried and evaporated fruits, at $21,900,000, were 14.4% less; oranges dropped 28% to $11,300,000; and fresh apples receded 28.0% to $10,600,000. Exports of wheat shrunk 27.3% in quantity and 53% in value to $36,800,000. Corn also declined drastically by 79% to $19,800,000.

X. BUSINESS AND FINANCE

FOREIGN TRADE BY CONTINENTS AND TRADE REGIONS

NOTE.—Exports include reexports of foreign goods. Data for 1910–14 cover years ended June 30; all other are for calendar years. The Philippine Islands are included in Asia for all years; Turkey in Europe is included in Asia beginning 1928; U. S. S. R. (Russia) in Asia is included in Europe beginning 1935. The adjusted figures at the bottom of the tables are obtained by deducting from northern North America and adding to Europe the total value of the reported exports of grain to Canada; at least 95 per cent of this grain is reshipped from Canada to Europe.

[Values in millions of dollars]

Yearly Average or Year	Total	North America				South America		Europe		Asia		Oceania		Africa	
		Northern		Southern											
		Value	Per Cent	Value	Per Cent	Value	Per Cent	Value	Per Cent	Value	Per Cent	Value	Per Cent	Value	Per Cent
EXPORTS															
1910–14...	2,166	320	14.8	181	8.4	121	5.6	1,350	62.3	121	5.6	48	2.2	25	1.1
1913......	2,484	409	16.5	192	7.7	147	5.9	1,500	60.4	154	6.2	54	2.2	29	1.2
1921–25...	4,397	627	14.3	445	10.1	297	6.8	2,318	52.7	499	11.3	141	3.2	70	1.6
1926–30...	4,777	830	17.4	403	8.4	448	9.4	2,236	46.8	574	12.0	177	3.7	110	2.3
1931–35...	2,025	300	14.8	162	8.0	141	7.0	960	47.4	350	17.3	49	2.4	62	3.1
1929......	5,241	961	18.3	434	8.3	539	10.3	2,341	44.7	643	12.3	192	3.7	131	2.5
1930......	3,843	671	17.5	349	9.1	338	8.8	1,838	47.8	448	11.7	108	2.8	92	2.4
1931......	2,424	404	16.7	187	7.7	159	6.5	1,187	49.0	386	15.9	42	1.7	60	2.5
1932......	1,611	246	15.3	119	7.4	97	6.0	784	48.7	292	18.2	37	2.3	36	2.2
1933......	1,675	215	12.8	126	7.5	114	6.8	850	50.7	292	17.4	35	2.1	43	2.6
1934......	2,133	308	14.4	178	8.3	162	7.6	950	44.5	401	18.8	57	2.7	77	3.6
1935......	2,283	330	14.4	202	8.8	174	7.6	1,029	45.1	378	16.6	74	3.2	96	4.2
1936......	2,453	391	16.0	225	9.2	205	8.3	1,040	42.4	399	16.3	79	3.2	114	4.7
1937......	3,349	519	15.5	321	9.6	318	9.5	1,359	40.5	580	17.4	99	3.0	152	4.5
1938......	3,094	475	15.4	265	8.5	300	9.7	1,326	42.9	517	16.7	93	3.0	118	3.8
1939......	3,177	503	15.7	304	9.6	329	10.4	1,286	40.6	561	17.7	79	2.5	115	3.6
GENERAL IMPORTS															
1910–14...	1,689	119	7.0	229	13.5	207	12.2	836	49.5	259	15.3	17	1.0	23	1.3
1913......	1,793	143	8.0	246	13.7	198	11.1	865	48.2	299	16.7	17	.9	24	1.3
1921–25...	3,450	397	11.5	514	14.9	421	12.2	1,049	30.4	943	27.3	54	1.6	71	2.1
1926–30...	4,033	480	11.9	460	11.4	546	13.5	1,211	30.0	1,193	29.6	53	1.3	91	2.3
1931–35...	1,713	236	13.8	177	10.3	244	14.3	516	30.1	491	28.7	16	.9	32	1.9
1929......	4,399	514	11.7	467	10.6	640	14.5	1,333	30.3	1,280	29.1	57	1.3	109	2.5
1930......	3,061	414	13.5	347	11.3	434	14.2	909	29.7	856	28.0	33	1.1	68	2.2
1931......	2,091	277	13.3	240	11.5	307	14.7	640	30.6	574	27.5	19	.9	33	1.6
1932......	1,323	181	13.7	157	11.9	201	15.2	389	29.4	362	27.4	8	.6	24	1.8
1933......	1,550	191	13.2	127	8.8	202	14.0	462	31.9	426	29.4	13	.9	28	1.9
1934......	1,655	238	14.4	161	9.7	229	13.8	489	29.6	490	29.6	15	.9	33	2.0
1935......	2,047	293	14.3	201	9.8	281	13.7	599	29.2	605	29.5	26	1.3	42	2.0
1936......	2,423	381	15.7	237	9.8	292	12.0	718	29.6	708	29.2	36	1.5	51	2.1
1937......	3,084	408	13.2	283	9.2	422	13.7	844	27.3	967	31.4	68	2.2	92	3.0
1938......	1,961	268	13.6	223	11.4	262	13.4	567	28.9	569	29.0	16	.8	55	2.8
1939......	2,318	349	15.1	232	10.0	317	13.7	617	26.6	699	30.2	27	1.2	77	3.3

COMMODITY CHARACTER OF 1939 IMPORTS

Crude Materials.—All commodity groups shared in the increase in 1939 imports. Crude materials continued to lead all other groups, improving 17.9% in quantity and 29.2% in value, to $745,000,000. Crude materials constituted 32.7% of all imports compared with 29.6% in 1938. Increases in crude materials imports were traceable to the industrial expansion in the

United States and to the policy of stocking up on essential raw materials in event of an emergency. Leading all imported commodities, crude rubber advanced 21.4% in tonnage and 37.4% in value to $178,100,000. Raw silk, at $120,900,000, was 36.1% greater in value and 6.5% less in volume. Hides and skins advanced 77.7% in quantity and 57.5% in value to $47,100,000. Furs and manufactures improved 21% to a value of $55,500,000. Imports of wool and mohair boomed 135.9% in volume and 119.6% in value to $49,600,000. Unmanufactured tobacco gained 15.5% in quantity and 2.5% in value to $36,900,000. Oilseeds declined 4.3% to $33,200,000; flaxseed, at $18,400,000, was 7.3% less. Crude petroleum improved 30.9% in volume and 25.2% in value to $23,300,000. Unmanufactured fibres other than flax or cotton gained 6.9% to record a value of $16,500,000.

Semi-manufactures advanced to second place among import commodity groups by improving 27.4% in quantity and 26.5% in value to $487,000,000. Semi-manufactures comprised 21.4% of total imports against 19.7% in 1938. Paper base stocks improved 2.4% to a value of $88,400,000; wood pulp gained 18.5% in tonnage and 4.3% in value to $75,900,000. Chemicals and related products were 1.9% greater, the value being $79,500,000. Tin bars, blocks, and pigs advanced 41.1% in tonnage and 57.4% in value to $70,600,000. Vegetable oils, expressed, decreased 13% to $51,000,000. Diamonds, at $45,100,000, were 59.3% greater in value and 131.5% in quantity. Copper, including ores and manufactures, gained 12.1% in tonnage and 16.8% in value to $44,200,000. Nickel ore, matte and alloy boomed 118.3% in quantity and 121.3% in value to $28,700,000. Ferroalloys were up 18.4% to a value of $21,400,000. Sawmill products (as revised) recorded an increase of 41.7% to $20,000,000.

Finished manufactures dropped to third place in the import commodity groups, in spite of an increase of 6.9% in quantity and of 5.5% in value to $440,000,000, which comprised 19.3% of total compared with 21.4% in 1938. Paper and manufactures gained 12.2% to a value of $126,800,000; newsprint improved 15.0% in volume and 14.1% in value to $115,700,000. Cotton manufactures, at $39,600,000, were 14.4% greater; cotton cloth, at $8,700,000, was 91.9% more in quantity and 33.2% in value. Burlaps declined 12.5% in quantity and 1.4% in value to $28,000,000. Manufactures of wool, including yarns, advanced 44.3% to a value of $25,600,000; manufactures of flax, hemp, and ramie gained 8.9% to a value of $22,400,000; petroleum, advanced and refined, fell 1.8% in volume and 4.8% in value to $18,700,000; art works improved 4.9% to record a value of $17,600,000.

Manufactured foodstuffs, including beverages, increased 3.2% in quantity and 1% in value to $313,000,000, thus comprising 13.8% of total imports. Cane sugar declined 2.4% in tonnage and 4.4% in value to $124,600,000. Wines and spirits fell fractionally to $57,300,000. Fish, including shellfish, gained 14.3% to $32,400,000. Packing-house products were 7.9% less with a value of $27,900,000; meat products included in this group receded 8.2% to $27,300,000. Vegetables and preparations advanced 12.2% to $18,100,000 and fodders and feeds boomed 200% to $11,300,000. Vegetable oils, edible, fell 33% to $10,700,000.

Crude foodstuffs improved 13.8% in volume and 11.8% in value to $291,000,000, comprising 12.8% of total. Receipts of coffee advanced fractionally in both quantity and value to $139,500,000. Fruits and nuts gained 5.6% to record a value of $58,200,000. Cocoa and cacao beans gained 46.5% in quantity and 37.1% in value to $27,600,000. Tea increased 20.2% in volume and 15.2% in value to $21,100,000. Cattle, except for breeding, were valued at $20,200,000, an increase of 122%. Dairy products and eggs rose 8% to $13,600,000. Spice advanced 40% to $14,400,000. Imports of grain rose phenomenally on a percentage basis but the value was negligible.

GEOGRAPHICAL DISTRIBUTION OF 1939 EXPORTS

Europe.—Only North America, South America, and Asia increased their purchases of United States merchandise in 1939, all other continents showing a decrease. Europe remained the chief continental market, taking 40.6% of total exports and declining 2.7% to $1,286,000,000. The United Kingdom was again our leading market, taking merchandise valued at $505,200,000, a reduction of 3% below the 1938 figure. Most of the European markets revealed an improvement. Shipments to France, valued at $181,800,000, were up 36%. The Netherlands, at $96,800,000, was substantially the same as the year before, but Sweden, with $96,700,000, showed an improvement of 53.1%. Shipments to Italy advanced fractionally to $58,900,000. Norway gained 43.3% to record a value of $32,100,000. Spain continued the recovery of the past few years, exports to Spain rising 118% to $26,700,000. Switzerland, at $18,600,000, showed a gain of 75.6% and Finland, at $13,400,000, was up 12.1%. Declines were recorded in sales to a number of European markets. Due to recent political changes in Europe, statistics have been consolidated for Germany, Austria, Czecho-Slovakia and Poland; shipments to this group fell 57.8% to a value of $67,100,000. Belgium, at $64,600,000, was 16.1% lower. With a decrease of 18.7%, exports to the U. S. S. R. were valued at $56,600,000.

Latin American markets for United States merchandise advanced 12.3% to record a value of $633,400,000 which comprised 20% of total exports. All important markets in this area showed improvement, with the exception of the Argentine Republic. Shipments to Argentina declined 18.3% to $71,100,000. Exports to the several Latin American countries, in order of value, and showing percentage increase as compared with 1938, were as follows: Mexico, $83,200,000 (34.1%); Cuba, $81,600,000 (7%); Brazil, $80,400,000 (29.7%); Venezuela, $62,000,000 (18.5%); Colombia, $51,300,000 (25.5%); Central America, $66,300,000 (31.5%); Chile, $26,800,000 (8.9%); Peru, $19,200,000 (13.9%).

Asia showed a gain of 8.7% to record a value of $560,800,000 which comprised 17.7% of total exports. All major Asiatic markets, with the exception of Japan, shared in the increase. Shipments to Japan, valued at $231,400,000, showed a decline of 3.1%. Philippine Islands, at $100,000,000, were up 15.6%; China gained 22.6% to record a value of $55,800,000, while shipments to China Proper were computed to have advanced 60.2%. British India improved 31.1%, to a value of $46,900,000. Netherlands India also advanced substantially—28.7% to $35,500,000.

Northern North America, almost entirely the Dominion of Canada, gained 4.8% to reach a value of $502,500,000 and thus comprise 15.7% of total exports. Shipments to Canada, at $493,500,000, were up 4.6%.

Africa.—Exports to both Africa and Oceania showed a decrease. Africa, with $115,100,000, declined 2.8% and comprised 3.6% of total. British South Africa, with $70,400,000, was fractionally lower. Egypt advanced 4% to $13,900,000. British West Africa, at $4,700,000, was 12.2% lower.

Oceania.—Shipments to Oceania fell 15.1% to a value of $79,500,000 which composed 2.5% of total exports. Australia, at $61,600,000 was down 10.8% and New Zealand, with $16,500,000, was 29.5% lower.

GEOGRAPHICAL SOURCES OF 1939 IMPORTS

Asia.—All continents and nearly all countries shared in the increase in the import trade. This was particularly true of overseas sources of supply of raw materials that were imported in such huge volume during 1939. Typical of the advance was Asia, our leading continental source of imports. Asia gained 22.8% to reach a value of $699,400,000 which was 30.2% of total. Receipts from the Philippine Islands alone, among the major countries of Asia, recorded a recession. The Philippines sent us $91,900,000 worth of merchandise, a decline of 2.5%. Japan, at $161,200,000, gained 27.2%. British Malaya, with $149,000,000, was up 32.7%; and Netherlands India, $93,000,000, improved 35.2%. British India was up 14.1% to $66,800,000. China rose 28.3% to $61,700,000. (Imports from China Proper were computed to have risen 31%).

Europe.—Receipts from Europe increased 8.8% to a value of $617,300,000 which constituted 26.6% of total. The United Kingdom, at $149,700,000, showed an improvement of 26.4%. Germany (and Austria, Czecho-Slovakia and Poland) declined 35.5% to $68,000,000. Belgium gained 51.8% to $63,300,000. France revealed an advance of 15.5% to a value of $62,400,000. Purchases of Swedish merchandise fell 6.2% to a value of $42,200,000. Italy was also down by 3.2% to $39,900,000. Switzerland, at $30,600,000, improved 32.9%. The Netherlands decreased 8% to $28,900,000. Receipts from U. S. S. R. were up 4.1% to $25,000,000. Greece gained 50.3% to $22,300,000. Norway was up 38.2% to $21,700,000. Denmark showed an increase of 14.1% to a value of $3,800,000; and with substantially the same proportionate increase, Finland recorded a value of $20,600,000. Other important increases in European sources of import were Portugal $6,400,000 (62.2%); Spain $10,200,000 (11.5%); and Ireland $1,700,000 (74.5%).

Latin American imports gained 13.1% to reach a value of $548,800,000, thus comprising 23.7% of total. Brazil, with $107,200,000 showed an increase of 9.5%. Cuba, at $104,900,000, was fractionally lower. Argentina, with a gain of 52.1% revealed the greatest improvement, imports having a value of $61,900,000. Mexico was up 14.7% to $56,300,000. Colombia decreased fractionally to $49,000,000. Chile, at $40,700,000 was 43.6% greater. Venezuela gained 17.9% to $23,600,000. Peru also increased to $13,900,000 a rise of 8.9%. Central American countries were 8.3% greater with a value of $36,600,000.

Northern North America improved 30.6% to a value of $349,400,000 which constituted 15.1% of total. Receipts from Canada rose 30.7% to $340,100,000.

Africa and Oceania revealed the most spectacular gains in the import trade. Receipts from Africa, at $76,600,000 were 40.3% greater. British South Africa gained 76% to $33,400,000. British West Africa increased 44.1% to record a value of $16,300,000. Egypt was up 47.2% to $7,000,000.

Oceania increased 65%, the value being $26,700,000. Both Australia and New Zealand advanced 71%, the values being $14,900,000 and $11,200,000, respectively.

THE EXPORT-IMPORT BALANCE

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GENERAL

The effect of international developments during 1940 upon the visible and "invisible" export-import position of the United States is reflected chiefly in (1) a merchandise export balance of approximately $1,400,000,000, the largest for any year since 1921; (2) a marked acceleration in the rate of gold imports which carried net imports to the unprecedented total of $4,744,472,000; (3) a sharp decline in United States travel expenditures abroad; and (4) a strengthening of the country's net creditor position despite a net inflow of foreign funds.

All of these influences had been operative in varying degrees during 1939 and even in earlier years. Although the excess of merchandise exports over imports in 1939 was only $859,000,000, as compared with $1,134,000,000 in

1938, this export balance was materially influenced by the accumulation of war reserves and the expanding activity of armament industries in various countries. Similarly, international gold movements had during recent years attained unusually large proportions and had reacted sensitively to such international developments as the Italo-Ethiopian crisis late in 1935 and the events immediately preceding the Munich Conference in the fall of 1938. The only important exceptions during 1940 to this general trend were the net liquidations of dollar securities by the United Kingdom and Canada and the net withdrawal of dollar balances by the former.

This reversal involved a direct use of dollar assets as required by the demands for United States war materials. As shown in the accompanying table, the net change in foreign long-term investments in the United States during the first 12 months of war was determined primarily by the net liquidation of British-owned American stocks and bonds. Combined long-term and short-term capital movements showed, however, no break from the trend of the previous six years. Only the sharp decline in United States travel expenditures abroad became an important factor in the balance of international payments during 1940 which had not been definitely in evidence the preceding year. Because of the seasonal nature of United States travel in Europe the outbreak of hostilities in September 1939 came too late to have a very pronounced effect on that year's total outlays.

FACTORS AFFECTING FOREIGN INVESTMENTS IN THE UNITED STATES

(End of August 1939 to End of August 1940)
[In millions of dollars]

Item	Canada	Belgium	France	Germany	Italy	Netherlands	Switzerland	United Kingdom	Other Europe	Total Europe	Latin America	Rest of World	Total
Net change in long-term investments......	−47	+1	−2	−2	+17	−11	+42	−184	+1	−138	−1	+2	−184
Net change in short-term investments......	+41	[1] −8	+200	+3	+15	+26	+194	−227	+227	+430	+44	+168	+683
Net change in long- and short-term investments.........	−6	−7	+198	+1	+32	+15	+236	−411	+228	+292	+43	+170	+499
Net foreign purchases (+) and sales (−) of domestic securities	−35	[1] +3	+3	−2	+12	+10	+60	−158	+5	−67	+2	+6	−94
Total gold imports[2].........	2,344	1	242	([3])	60	107	100	828	305	1,643	146	504	4,637

[1] First 8 months of 1940.

[2] Exclusive of gold exports, which were negligible, approximating only $5,000,000. These figures, however, include a net increase of $558,900,000 of gold earmarked for foreign account during this period. At the close of August 1940 the volume of earmarked gold totaled $1,694,300,000, compared with $1,135,400,000 a year earlier.

[3] Negligible.

MERCHANDISE TRADE

With the outbreak of the war in Europe in September 1939, both the composition and destination of United States exports experienced marked shifts. The substitution of the "cash and carry" provisions for the arms embargo by the neutrality legislation of Nov. 4, 1939 opened the way for a sharp rise in shipments of airplanes and other war materials with the result that exports in 1940 reached approximately $4,050,000,000, the highest total since 1929. Monthly export statistics throughout 1940 reflected more and more the influence of foreign demand for the type of materials which had been banned by the Neutrality Act of 1937. The withdrawal of France from the war in June left the United Kingdom as the principal source of demand for such exports while at the same time a growing Canadian demand for certain products developed from the requirements of that country's wartime economy and participation in the conflict.

The maintenance of a relatively high level of merchandise exports during the last quarter of 1939 and throughout 1940 lifted the value of shipments to foreign countries to a higher level than that obtained during any corresponding period since 1928-29. Not only did shipments to certain European belligerents increase but, as during the previous conflict, exports to Latin America rose as war conditions and maritime blockade closed some of the more important European markets to the countries of Central and South America.

Merchandise imports in 1940 also showed appreciable gains in value after the outbreak of the war and aggregated about $2,622,000,000. The recovery of domestic business from the low points of 1938 was strengthened by the wartime demands abroad and, at an increasing rate during 1940, by the defense program of the United States itself. The effect of these factors was reflected in the maintenance of a relatively high level of imports. Regular needs for raw materials and other foreign products were fortified by the accumulation in this country of stock piles of certain strategic and essential materials. Although imports thus became an important source of foreign-owned dollar funds, the excess exports of $1,400,000,000 necessitated the utilization of other dollar assets to which attention is directed below in the discussion of service transactions, gold movements, and capital movements.

SERVICE TRANSACTIONS

Tourist Travel.—The principal change in international service transactions during 1940, as compared with the preceding year, was the sharp drop in United States travel expenditures abroad. Although Canada has long been this country's principal seller of travel services, the countries of Europe as a whole still receive under normal conditions the major portion of those American travelers who visit abroad for a month or two on single trips. These long stays, together with the fact that a large fraction of our trans-Atlantic travelers take passage on foreign-owned vessels, involved the aggregate payment to foreigners for European travel alone of $135,000,000 in 1938 and $84,000,000 in 1939. As a result of the war these payments on European account have virtually ceased. Although travel expenditures in Latin American countries during 1940 continued the rise of other recent years, United States travel among our Latin neighbors is still quite unimportant in comparison with the usual stream of tourists to Europe. As a result the war has been instrumental, despite a continuation of relatively heavy United States travel in Canada during 1940, in reducing very materially the volume of dollar payments to foreigners for the entertainment and care of United States travelers.

Shipping.—Among other so-called service transactions it is not likely that very sharp changes occurred during 1940 in the total dollar funds involved. In shipping, various shifts resulted from belligerent blockade measures and the neutrality legislation of the United States, but these changes did not appear to produce any very pronounced net changes in the balance of international payments. Shipments of United States exports requiring passage through the war zones must be carried in vessels of foreign registry. Some of these shipments are normally made in United States ships and our neutrality legislation has thus eliminated some of the usual sources of earnings. On the other hand, the withdrawal of certain belligerents from the carrying trade outside the war zones has increased the operations of United States vessels in such areas. These shifts were, of course, certain to influence the international earnings of United States vessels as well as the total payments normally made to foreign vessels for the carriage of this country's imports. The net effect on this country's international shipping balance can not yet be accurately determined but the resulting changes can hardly be among the more important factors in the balance of payments of 1940.

Interest and Dividend Payments.—Similarly, changes in estimated interest and dividend earnings and payments, respectively, in 1940 tend to offset each other. This country's interest and dividend receipts from abroad are certain to be less than the $531,000,000 reported for 1939 but the decline is fully offset, and possibly exceeded, by the drop in United States dividend payments to British and Canadian investors because of the year's net liquidation of American securities by these two belligerents.

GOLD MOVEMENTS

Net imports of gold during 1940 aggregated $4,744,473,000. Of this amount, $644,669,000 was placed under earmark for foreign account with the result that the net addition to the country's gold stock from foreign sources amounted to $4,099,804,000. Not only did these movements exceed the record high levels of 1939 when net imports amounted to $3,574,000,000 (of which $534,000,000 went under earmark, thus resulting in a net "inflow" of $3,040,000,000), but they provided the extraordinary phenomenon of a year's net addition, from foreign sources, to existing gold stocks which exceeded the total merchandise exports during the same period. The highly accelerated rate of gold inflow, particularly at the time of the German invasion of the Low Countries early in May, resulted in a rapid westward shift of the world's major gold reserves, with the result that by the end of the year the United States gold stocks stood at the extraordinarily high peak of approximately $22,000,000,000, while foreign-owned gold held under earmark in this country reached the record high level of $1,808,000,000.

CAPITAL MOVEMENTS

The net recorded inflow of capital during 1940 amounted to roughly $500,000,000 as compared with $1,400,000,000 in 1939. The explanation for this decline in the face of a much larger gold inflow lies primarily in Great Britain's needs for dollar funds to meet payments for purchases of war materials in the United States, for meeting requirements under contracts for plant construction in this country, and for meeting certain other charges which are not reflected in the figures on merchandise exports to Great Britain. Because of that country's dollar requirements throughout the year, British short-term dollar assets in the United States fell from $468,000,000 at the end of 1939 to $386,000,000 by the end of September 1940, while during the same period the net liquidation of British-owned American securities yielded $57,000,000 in cash funds.

Despite the net sale of American securities on foreign account by the outside world as a whole and a net withdrawal of dollar balances by the British authorities, the flight of capital from Europe generally, as the war spread over large areas, enlarged the total dollar liabilities of the United States to foreign creditors. From the end of 1939 to the beginning of October 1940, foreign liabilities of American banks rose on balance by more than $700,000,000. During the same period a return flow of

American banking assets abroad provided for an inflow of approximately $150,000,000. Shifts in brokerage balances and the net purchases by foreigners of foreign securities in the United States during the first nine months of the year resulted in a net inflow of funds of $87,000,000 which was almost exactly offset by the net liquidation of foreign-owned American securities. It is estimated, in the absence of data for the final quarter of the year, that the net sale of American securities on foreign account and other capital transactions involved a net outward movement of funds of between $200,000,000 and $300,000,000.

EUROPE'S DOLLAR ASSETS

At the end of 1939 the financial stake of Europe in the United States amounted to approximately $6,698,000,000. Of this total, investments in stocks and bonds accounted for $2,904,000,000; direct participation, through full ownership of subsidiaries in this country or through a controlling participation in American companies, together with miscellaneous "long-term" investments, amounted to $1,871,000,000; and dollar balances and other short-term assets aggregated $1,923,000,000. Among the principal belligerents as of that date the United Kingdom possessed dollar assets of $2,800,000,000, the French dollar assets were somewhat less than one-fourth the British, while the German dollar investments of $110,000,000 were but a fraction of the estimated holdings of almost $1,000,000,000 which Germany held here at the beginning of the World War in 1914.

Among the other European countries whose dollar assets were comparatively large at the end of 1939 were Belgium, The Netherlands, Italy, and Switzerland, all of which, it could be assumed, might conceivably be drawn into the new European conflict. Of these, Switzerland's holdings at the end of 1939 were estimated at $1,138,000,000; those of The Netherlands at $1,100,000,000; Belgium's at $312,000,000; and Italy's at $79,000,000. Although Belgium and The Netherlands were invaded before the middle of 1940 their participation was of short duration, while France, though at war from the beginning of the conflict, was forced to surrender soon after actual invasion. The "occupied" status of these countries and the executive order of April 10, whereby dollar funds of invaded countries were "frozen", protected their holdings here against withdrawal except under license of the United States authorities. The comparatively small holdings of Germany and Italy, which were largely of a kind difficult to liquidate—and even if liquid would have been barred by enemy sea power from effective utilization for commodity purchases—need be given no further consideration at this time.

NEUTRALITY ACT OF 1939

The "cash and carry" provisions of the Neutrality Act of 1939, approved Nov. 4 of that year, were certain to have an important influence upon the international transactions of the United States. The repeal of the embargo on the export of arms, ammunition, and implements of war to belligerents paved the way for an increase in the total value of merchandise exports. Moreover, any belligerents which possessed considerable dollar assets, together with the means of transporting materials without being subject to effective enemy blockade, were certain to add to those assets through the shipment of gold on official account and thus affect the nature and amount of dollar assets shifted to this country or withdrawn therefrom during a particular period. An examination of these changes is, therefore, an important part of the analysis of the export-import balance.

CREDITOR-DEBTOR POSITION OF THE UNITED STATES

Since 1934 the international financial position of the United States has been dominated by the almost continuous inflow of gold. During the same period the country's gross creditor position has been steadily reduced, largely through redemption and sinking fund purchases of outstanding dollar bonds and the periodic repatriation of such bonds by foreign debtors. At the same time the gross debtor position was strengthened by periodically heavy purchases of American securities by foreigners and by an erratic but unusually large inflow of foreign capital into American bank balances. The combined effect of these movements was a steady reduction in the country's net creditor position.

Despite the continued net inflow of foreign capital and a decline in outstanding foreign dollar bonds the effect of the war has been the strengthening of the country's net creditor position. This apparent paradox is explained by the nature, rather than by the volume, of international capital movements in 1940. The British and Canadian utilization of dollar funds involved in part the liquidation of American securities which on the whole yielded a high rate of dividend return, while the new foreign funds expatriated to the United States consisted largely of flight capital which sought refuge in dollar balances yielding no income.

At the end of 1934 estimated United States investments abroad (including balances in foreign banks and other short-term assets) amounted to $13,530,000,000, while corresponding holdings of foreigners in this country were reported at $5,622,000,000. On the basis of actual assets and liabilities, as contrasted with respective yields thereon, the net creditor position of the United States at that time was $7,908,000,000. Largely as a result of the unprecedented flight of foreign capital to the United States this net position was reduced by the end of 1939 to $1,903,000,000. As already indicated it was further reduced during 1940.

If changes in the international interest and dividend account be used as the test, the net creditor position of the United States had not been materially changed by the flight of European capital to this country. The net liquidation of British and Canadian holdings of American stocks during 1940, though, as already indicated, involving a comparatively small volume of funds, exerted a much stronger influence upon the country's net creditor status. Since this process involved an outward movement of capital the net creditor position was strengthened. This shift will continue as high yielding American shares are being liquidated for the financing of exports from this country to the British Empire.

EFFECT OF FIRST YEAR OF WAR

Foreign holdings of United States stocks, bonds, cash balances, and other dollar assets at the end of the first year of the war (Sept. 1940) are estimated at $9,563,000,000, compared with $9,064,000,000 at the end of August 1939. The increase of approximately $500,000,000 resulted from a combination of factors. The flight of alien capital to this country influenced the rise of foreign-owned dollar balances. "Long-term" holdings by foreigners showed a decline from $6,111,000,000 to $5,927,000,000, a drop in which British net liquidation of American common stocks was the most important single factor. Canadian and British dollar assets, which comprise about 95 per cent of total British Empire holdings in the United States, were placed at $1,393,000,000 and $2,561,000,000, respectively, at the end of August 1940, compared with $1,399,000,000 and $2,972,000,000 a year earlier.

Although net merchandise exports to Canada and the United Kingdom amounted to $875,000,000, these countries drew upon their combined dollar investments only to the extent of $186,000,000 of dollar balances and $193,000,000 of United States stocks and bonds, respectively. The balance, together with payments for capital expansion and advance outlays for goods not yet shipped, was met principally out of the proceeds of gold shipments. Even though some of the Canadian gold exports to this country during the first year of the war were presumably credited to non-Empire accounts it is apparent from the figures in table given earlier in this review that British Empire gold shipments constituted an important source of dollar payments which the British authorities made in the United States during the first 12 months of the war.

The combined effect of international capital transfers and changes in the market value of common stocks upon the total foreign holdings of investments and dollar balances in the United States since 1934 is shown in the following table. The most significant change in these figures is the steady increase in foreign-owned balances in this country, a movement which reflects in part the volume of gold inflow throughout the period.

FOREIGN INVESTMENTS IN THE UNITED STATES, BY PRINCIPAL TYPES, 1934, 1937, 1939, AND AUGUST 1940

[In millions of dollars]

Types of Investment	1934 (Year-End)	1937 (Year-End)	1939 (Year-End)	1940 (End of August)
Long-term investments:				
Direct investments (stated value)	1,800	1,883	[1]1,978	1,988
Common stocks (market value)	1,471	2,359	2,493	2,102
Preferred stocks (par value)	386	554	499	[2]478
Bonds (par value)	536	565	570	[2]600
Miscellaneous	750	751	750	750
Total long-term	4,943	6,112	6,290	5,927
Short-term investments	679	1,920	3,215	[2]3,636
Grand total	5,622	8,032	9,505	9,563

[1] Increased by $43,000,000 to take account of new data.

[2] The market value of the investments in preferred stocks in August 1940 was about 68 per cent of par and of the bond investments about 73 per cent of par.

CONCLUSION

The international financial position of the United States during 1940 was influenced by a series of factors which had their genesis largely in financial and political development abroad over a period of at least five or six years. As a result, the war merely accelerated some of the movements which unsettlement in Europe had previously inaugurated. The very large merchandise export balance, though reduced somewhat by this country's net dollar payments for services, was nevertheless extraordinarily large and required, in effect, the inflow of at least $1,000,000,000 in gold to provide the necessary means of payment to foreign purchasers. Moreover, the conditions under which the British authorities entered into commitments relating to future production involved substantial dollar payments for goods and services not reflected in the figures reported for the past year. These dollar requirements, together with the flight of foreign funds into dollar balances and the movement of foreign gold reserves into earmarked accounts in the United States brought about the extraordinarily heavy movement of gold to the United States. In view of the fact that the major part of the principal national gold reserves has now been shifted to the United States, it is unlikely that the unprecedented net imports of $3,574,000,000 will again be equalled for many years.

X. BUSINESS AND FINANCE

IMPACT OF WAR ON TRADE POLICIES OF FOREIGN COUNTRIES*

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INTRODUCTION

While the official measures of trade control by foreign countries, with which this review primarily deals, have during the past year been predominantly of a restrictive character, such measures have often been offset or overbalanced by the larger forces that have determined the general volume and direction of the foreign trade of various countries, notably that of the United States. In fact, the war developments which have led to most of the restrictions here discussed, and shifted or cut off many large movements in international trade, have themselves brought on important alternative movements of large volume, though often involving different commodities and countries. Moreover, they have given rise to a suddenly increased volume of foreign trade in war materials and equipment, beyond any peacetime magnitude.

Whatever the ultimate effect of the foreign trade control developments of the past year upon the movements of international commerce, when war demands and constrictions eventually taper off, the actual foreign trade experience of the United States for the year 1940 may be summarized as follows, on the basis of the records for the first eleven months: The export trade of the United States for the past year is expected to exceed $4,000,000,000, an increase of 32 per cent over the preceding year, and the highest value recorded since 1929. The general imports of the United States are expected to approximate $2,600,000,000, an increase of 15 per cent over 1939. The net export balance of merchandise for the year will approximate $1,400,000,000.

OCCUPIED AREAS OF EUROPE ANNEXED

The territorial spread of military activities resulted during the year in the physical annexation, or absorption into the customs areas of the occupying powers, of a number of countries or portions of them. Such areas have thereby been entirely bereft of independent outside trade relations, and have become subject to the same conditions of foreign trading as the absorbing country. According to the latest information available, not yet confirmed officially on all points, these changes may be listed as follows:

1. March, 1940—Albania formally absorbed into the Italian trade system by the establishment of a "customs union."
2. March—Part of Southeastern Finland annexed by Russia and presumably made part of the customs territory of the Soviet Union.
3. May—The German invasion of Belgium followed by incorporation into the German customs area of Luxembourg and of the districts of Eupen-et-Malmédy.
4. May—The German invasion of France followed by the absorption of Alsace and Lorraine, later in the year.
5. June to August—In successive partitions of Rumania, Russia took over the two northern provinces of Bessarabia and northern Bukovina, and presumably incorporated them into its customs area; the northern province of Transylvania was ceded to Hungary, and southern Dobruja to Bulgaria.
6. August—Political incorporation of the Baltic republics of Estonia, Latvia, and Lithuania into the Soviet Union, followed, toward the end of the year, by removal of the customs frontiers.
7. October—After several transitional steps, Bohemia-Moravia incor-

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* For a fuller discussion of this subject, see series of 3 articles in "Foreign Commerce, Weekly," U.S. Department of Commerce, Feb. 1, 8, and 15, 1941.

porated into the German customs area.

8. December—Following several preliminary steps, import duties were lifted on the movement of Netherlands goods into Germany, with reciprocal duty-free movement of German goods into The Netherlands expected shortly.

9. Poland presumably absorbed into the German and Russian customs areas respectively, although definite reports are lacking. The area temporarily set up as a separate "Government-General" was, during the year, taken "under the protection" of the German authorities.

OCCUPIED AREAS OF EUROPE NOMINALLY INDEPENDENT

Denmark.—At first, it appeared that the areas occupied by Germany and not definitely annexed were to maintain their own import duties and taxes and general fiscal regimes, as well as carry on negotiations with the accessible countries, although subject to German supervision or approval. Denmark seemed to be in a more independent status than Norway, The Netherlands, Belgium, or occupied France. For a time, the Danish authorities at Copenhagen were reported to be making agreements directly for trade exchanges with other countries of Europe (*e.g.* Switzerland and Yugoslavia), with payments cleared directly through their own national banks. Toward the end of the year, however, German authorities took over the direction of such negotiations with Denmark.

The Netherlands has been drawn into especially close trade relations with Germany. In October, reduction or omission of levies on imports were authorized by the German occupying officials. Shortly thereafter, the restrictions on movements of goods and of payments between Germany and The Netherlands were considerably relaxed. In December, the German duties on Netherlands goods were lifted, with the expressed anticipation that the reciprocal duty-free admission of German goods into The Netherlands would follow.

German Restrictions.—Such scope for autonomous trade control and independent action in negotiations as appears to have been retained by the occupied areas has been distinctly limited by the prior and overriding action of Germany, in taking over domestic products or imported stocks accumulated in the occupied areas, presumably to be covered by German goods in such quantity and variety as that country could spare. No published records of movements of goods between Germany and the occupied areas are available. However, the reports of sharp increases in the living costs in the occupied areas, and of rationing to the civil populations of long lists of products and materials, including commodities of which the countries normally have a surplus above domestic requirements, seem significant.

Exchange Ratios.—An important element in trade arrangements between Germany and the occupied areas has been the change in the terms of trade, to the disadvantage of those areas, resulting from the new exchange ratios established between the respective national currencies. For the declared purpose of readjusting the relative price levels, the exchange ratio of their currencies in terms of Reichsmarks was regularly lowered, and in several cases more than once. These successive cheapenings of the other countries' currency had the immediate effect of increasing the purchasing power of German money for the products of the occupied countries, and of making German products dearer to their populations.

NEUTRAL COUNTRIES OF CONTINENTAL EUROPE

For the countries of continental Europe not involved in the war, progressive shrinking of the areas open to overseas trade was the overshadowing development of the year.

With the increased domination by Germany of the major portion of the Continent, the entrance of Italy into the war, and the extension of the British blockade, so as to close off the Mediterranean as well as most of the Atlantic coast, very few European countries had open to them any important lines of communication with overseas areas. The principal exceptions were: Soviet Russia, with its Asiatic frontiers, although subject to the limited facilities of the Trans-Siberian railroad; Greece and Turkey, which were able to maintain some trade through eastern Mediterranean outlets, and then around the Cape of Good Hope; Spain and Portugal, with the ports of the latter attaining exceptional importance as practically the sole ports of entry for western Europe; and Switzerland, which managed to obtain double clearance for a series of specially chartered ships to deliver quantities of her specialty products to the United States, partly for redistribution, and to obtain limited quantities of essential supplies in return. The one other port open to the Atlantic has been Petsamo in Finland, capable of handling only a very limited volume of traffic, even when permission of the belligerents could be secured. Water traffic within the Mediterranean, which was quite active for some time after its closure to overseas merchant vessels, was sharply curtailed after the Italian invasion of Greece in late October. This contraction could only in small measure be offset by the limited rail transport facilities across the continent available for movement of civilian merchandise.

Not all of the countries of continental Europe were equally affected by the shrunken area open to trade, the situation varying principally in accordance with the ease of communication possible with other than the Axis Powers, and with the degree of German economic and political influence in the particular country. In general, however, practically all the countries of Europe not already living under a controlled economy appear to have adopted, for the time, a pattern of trade control closely resembling it. In their increasing economic isolation, most of these countries apparently found it necessary for the government to charge itself with close regulation and direction of the whole nation's economy, in the interest of insuring the minimum supplies necessary to its population and industries.

In the field of foreign trade, almost all of these neutral countries of Europe sooner or later during the year reached the stage of a fully centralized system of government regulation of most, if not all, import and export transactions by permits. In a number of cases these were apportioned through trade syndicates or unions, whose members alone could trade in the particular products. Foreign trade control was usually closely tied in with extensive state intervention in domestic production and distribution, and often with rigid price control measures, accompanying increasing lists of products rationed to civilian populations in limited quantities.

In the governmental direction of foreign trade, the usual commercial objectives and methods, in several cases subordinated for sometime past, were now very largely displaced. Early steps were often taken to reduce or waive the duties on articles of necessity, so as to encourage their importation from wherever obtainable. New or increased export duties were often imposed even on products of which the country normally had an exportable surplus, and an increasingly wide range of products, manufactured as well as natural, were put under license control. In the granting of import and export permits, preferences and priorities were gradually expanded, often serving objectives more political than commercial.

The year was marked by considerable activity in the negotiation and re-negotiation of trade and payments agreements on the part of the neutral countries of Europe. They were naturally limited almost entirely to those countries reachable under the constricted situation. These agreements usually provided for definite trade turnovers, commonly in the form of assigned quotas of specific products which each was to make available, with settlement made through clearing accounts, although not necessarily on a strictly balanced basis. The trade arrangements with Germany were usually the outstanding ones, and most of those were apparently dominated by the German desire to obtain increased quantities of products or stocks from the other countries, in return for such German goods as could be promised delivery, or by arrangements for the balancing of accounts by supplies from third countries.

The trade relations between the neutral and the occupied countries of Europe tended to become increasingly tied up with trade arrangements with Germany. Germany required that payments for trade with the occupied areas be made through special clearing accounts in the Reichsbank at Berlin. According to reports, payments for trade between the occupied areas and Finland, Sweden, Switzerland, Italy, Yugoslavia, Bulgaria, and Greece are now required to be made through such Berlin clearing accounts —and the list is probably not complete. This is in line with the plans much discussed in Germany during the year for developing a collective clearing system for all European trade, to center at Berlin. However, this appears to have objectives in addition to the financial convenience of clearing the accounts of various countries through a single currency.

As in the case of the annexed and occupied territories, the trade arrangements during 1940 with most of the neutral countries of Europe, now largely dependent economically upon Germany, provided for adjustments in the price levels and terms of trade with the Reich, through increasing the value of the mark in terms of the other currencies. Following the announcement in November of negotiatiated increases in the premium above the legal parity of the Reichsmark, that were to be paid by the banks of Yugoslavia, Bulgaria, and Hungary in payments through the clearing accounts, press despatches from Berlin quoted official commentators to the following effect: "The Reich in its present dominant position as seller and buyer probably could obtain still better terms, but the government is apprehensive of the effect which higher Reichsmark rates might have on the ability of the Balkan countries to buy German goods, considering the limited buying power of their populations."

SPECIAL POSITION OF GREECE AND TURKEY

As earlier intimated, not all neutral countries of Europe were in a position which obliged them to accept as uneven terms in their commercial dealings with Germany. Greece and Turkey were notable among those reported to have maintained much more independent positions in their negotiations. Each had concluded trade agreements during the year with both Great Britain and Germany, and carried on a fairly active trade with both, although by no means equally maintained in former volumes. Both these governments also carried on an active trade under agreements with Italy during most of 1940, the Greek treaty being terminated by the Italian invasion in late October, and the Turkish agreement being allowed to lapse at the end of the year. Early in December, arrangements of broad scope between the British and Turkish governments were announced which were declared to be designed "to bring about a considerable increase in trade through commercial exchanges between Turkey and the British Empire." The means provided for attaining that end were not made public.

OVERSEAS TERRITORIES OF OCCUPIED COUNTRIES

French.—After the fall of the home country, the changes in the trade connections and commercial policies of the various European colonies and territories overseas varied widely. In the case of the French colonial empire, at least three different types of commercial orientation and policy appear to have developed since the capitulation of France in mid-June. The North African areas of Algeria, French Morocco and Tunisia, nearest to France, and cut off by the British blockade from most of their former trading connections, appear to have continued in the same position as France proper. In fact, except for the small turnover with France and with each other, the foreign trade of these areas during the latter part of the year has been reported as negligible.

French Indo-China, the most important French colony, stands in a somewhat intermediate position. Being cut off indefinitely from its principal markets in France and the continent, and obliged to rely upon its own resources and make new adjustments with the countries with which the trade lanes are open, the government was authorized by the Vichy authorities to assume practical customs autonomy, effective Jan. 1, 1941. Under the new regime, the local government is authorized to negotiate with foreign countries for reciprocal trade arrangements, and to reconstruct the duties and restrictions of the colony on a basis allowing curtailment of the preferential treatment which France and French colonial products had hitherto enjoyed. Heretofore, Indo-China had been classed as an assimilated colony. Free trade prevailed between it and most other parts of the French Empire, and the import duties and quotas, as well as the trade relations of Indo-China with other areas, were determined for the most part from Paris, and primarily in accordance with its interest. In its new status, the Indo-Chinese Government is already engaged in negotiations with Japan for a trade agreement along new lines.

Among the non-Mediterranean French areas of Africa, a definite separation has developed. French West Africa has remained under the close control of France proper, and a local proposal for relative lowering of the duties on non-French imports was vetoed by the Vichy authorities. In contrast, the areas comprising French Equatorial Africa set up, at the end of August, a regime termed "Free French Africa," with full power to carry on the rule of these areas, "pending the complete liberation of the Metropolitan territory and its constitution." Certain adjacent areas, including the mandate of Cameroon, later adhered to this regime, and such preferences as existed in favor of French goods were discontinued, being replaced by a single tariff now applying to imports from all sources.

In December, the British Colonial Secretary announced that economic arrangements had been negotiated with the Free French colonies in Africa intended "to give general effect to the British Government's pledge to maintain the economic structure of the countries in question by buying as much of their produce as we can, and by providing in return such imports as are necessary for the life of the country." Scattered reports indicate that Tahiti and the related group of French islands in the Pacific, and the islands of New Hebrides and New Caledonia, have also expressed their adherence to the Free French regime set up in Africa. New Caledonia in particular is reported to be reorienting its trade into closer relations with nearby Australia.

Belgian Congo.—In a somewhat similar position to Free French Africa is the colony of Belgian Congo, an important source of copper and various tropical agricultural products. An economic agreement is reported to have been negotiated by a British mission, with the approval of the Belgian Colonial Minister, under which Great Britain pledged itself, as in the case of Free French Africa, to maintain the economic structure of the Belgian Congo, by the purchase of its products and supplying its import necessities. Under an international agreement of long standing, the products of all countries are accorded equal tariff treatment in the Belgian Congo.

Netherlands Indies.—Since the invasion of The Netherlands, the local government of Netherlands Indies has been exercising broad powers in trade control matters, as in other respects. After May 11, exchange restrictions on foreign payments were established, special permission was required for all imports, and a general control of exports was introduced. Additional wartime taxes were imposed on exports of rubbre, tin, cinchona, petroleum and other native products in high demand, and agreements negotiated with various countries regarding the conditions of obtaining supplies. By agreement with British India, the import restrictions into that country were lifted on products of the Netherlands Indies, and the area was placed on an equal basis with those constituting the sterling bloc. Australia has similarly waived her import license restrictions on goods from the Netherlands Indies. In the Netherlands West Indies, which had early been occupied by the Allied forces for the duration of the war, all foreign trade is under license, but operated in close relation to the sterling areas.

BRITISH EMPIRE

British sea power has allowed Great Britain and the various members of the British Empire to continue fairly active trading with all parts of the world other than the belligerent, occupied, or secluded areas of continental Europe, and the adjacent North African coast. However, under the spread and intensification of the war, the desire to maintain foreign trade in normal variety and volume had to give way progressively during 1940 to the imperative need of utilizing all available resources at home or from abroad primarily for the war effort.

In the United Kingdom, the growing pressure of the war brought a series of interlocking measures. These increasingly centralized the conduct or direction of foreign trade, as well as of the domestic economy, in the hands of governmental agencies; imposed or extended rationing and price control over many commodities; curtailed the range of products for civilian use permitted to be imported, particularly from outside the Empire; and expanded to an unprecedented degree purchases and contracts abroad, especially in the Empire and the United States, of materials and products essential to the conduct of the war. At the same time, Great Britain sought, by its naval blockade and prior verification of the destination of shipments through the navicert system, to hold to a minimum the delivery of goods of whatever origin to Germany, Italy, and the territories under their control.

In the control of imports into the United Kingdom, the year's changes in duties were almost all by way of reductions or exemptions, apparently to facilitate the importation from any source of desired materials or products. The determining control was exercised through import license and exchange permit systems, the scope of which was extended. First, all luxury and non-essential commodities were controlled; then, by March 18, imports of all foodstuffs were subject to license; and by June 10, prior import licenses were required for practically all remaining products. Many commodities for which licenses were at first granted in limited quantities were later cut off altogether. Purchases abroad of foodstuffs came under the control of the Ministry of Food, and supplies of major materials and manufactured goods for military purposes came increasingly under the Ministry of Supply or Air Ministry, operating in the United States largely through the British Purchasing Commission.[1]

In order to conserve foreign exchange, particularly dollar exchange, for purchase of military supplies, and to support the economic position of various classes of producers in the dominions and colonies, the program was continued of concentrating purchases of particular commodities so far as possible within the British Empire, and in certain countries politically allied, principally Greece, Turkey and Egypt. As the countries of northwestern Europe came under German occupation, this preference was extended also to certain of their overseas territories. The program inaugurated shortly after the outbreak of the war, for purchase undertakings of large quantities, or of the entire exportable surplus, of various natural products from different parts of the Empire and allied areas, was enlarged during 1940. In some cases, preemptive purchasing was reported of products Great Britain desired to keep from its enemies.

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[1] Early in January 1941, all import activities were centralized under an "Import Executive," headed by the Minister of Supply.

As the year proceeded, the scope of permitted imports, even from the Empire, was curtailed, in line with the program for concentrating domestic productive effort on necessities, minimizing any expansion of consumer purchases of non-essentials, and diverting a larger share of income to war bonds. In October, a purchase tax of 33 1/3 per cent on a wide range of luxury products, and of half that on certain convenience products, was imposed on both imported and domestic products, and frankly characterized as "a consumers' tax."

The increasing restrictions on the importation of many products into the United Kingdom and various Empire areas during 1940, here described, have led to a shift in the composition, rather than a curtailment in the total, of the trade of the United States with most parts of the British Empire. In fact, the increased purchases of wartime supplies, especially by Great Britain and Canada, have compensated in a measure for the loss of markets on the continent of Europe.

During the first 12 months of the war, total shipments to the United Kingdom were 57 per cent higher than during the year preceding, although British purchases had shifted sharply from the normal range of American agricultural products of a broad variety and manufactured products for consumer use now regarded as dispensable, toward products more vital to the conduct of the war. During the latter months of 1940, nearly two-thirds of the total value of United States exports were accounted for by the British Empire, as compared with one-half or less prior to the war.

CANADA

The general license control over imports, exports, and foreign exchange, introduced by Canada in September 1939, was operated for a time as a precautionary rather than a restrictive measure. However, with the closer gearing into the needs of Great Britain, under the intensified tempo of the war, and the necessity for larger Canadian purchases of war supplies, mainly from the United States, the Canadian system developed during 1940 into a wartime foreign trade control of a seriously restrictive character upon many types of transactions. In June, a 10 per cent war exchange tax was imposed on all imports from non-Empire sources, and restrictive license controls were imposed upon the imports of selected individual products during the course of the year. Finally, on Dec. 2, a drastic series of measures was applied, prohibiting altogether the importation from non-sterling areas of a broad range of consumers' products regarded as dispensable, and limiting the importation of certain other products on an avowed decreasing scale.[2]

At the same time, sizeable excise taxes were established on a number of Canadian-produced articles, to prevent the expansion of domestic production of articles which were being prohibited or restricted from importation. This was in line with other domestic measures, including a sales drive for war savings certificates, designed to curtail domestic expenditures upon dispensables. The use of aluminum for the manufacture of household articles had already been prohibited, and a ban was placed upon production of new-model automobiles and a variety of appliances and equipment requiring the use of machine tools. Simultaneously with the restrictions applied to non-sterling areas, Canada announced the removal or reduction of import duties on a list of products from the United Kingdom, as an aid to British payment for the increased volume of Canadian war materials.

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[2] Goods proven to have been ordered prior to Dec. 2 were permitted to be delivered up to the end of February 1941, under a general permit.

FAR EAST

In the Far East, the Sino-Japanese conflict, continuing into its third year, was the overshadowing consideration, particularly as regards the trade control measures of Japan, China, and adjacent areas. The situation was marked by some shifting in the areas of military activity and Japanese control, the extension southward of the trade restrictions imposed by the occupying forces in 1939 in the northern provinces of China, and of the blockade against coastwise shipping. The conduct of import and export trade in the occupied areas is reported to be diverted, by the operation of various trade control measures, increasingly into the hands of Japanese firms or Japanese-sponsored organizations.

Trade with Japan itself has for some time been severely restricted by the operation of the various governmental controls, and by the diversion of resources to the military program. Consumption of luxury articles has long been banned, and many civilian necessities closely rationed. It is reported that, in the expectation of a more limited participation in foreign trade during the period ahead, many pivotal Japanese industries are undergoing extensive changes, in line with the policy of gearing the national economy to military needs. Foreign trade control is also being directed more and more toward the contemplated new national structure of Japan, and in the light of the prospective "East Asia Co-Prosperity Sphere." Further steps were taken during 1940 toward concentrating the conduct of foreign trade in the hands either of governmental agencies or of officially-sponsored import and export combinations, into which individual firms in particular lines have been merged.[3]

LATIN AMERICA

Though not participants in the European war, and distant from the area of its operations, the countries of Latin America have been among those feeling most keenly the impact of the war upon their trade. Normally exporting the bulk of their staple products, these countries are dependent more than most upon the continued availability of foreign markets at fair prices, not only for a major part of local income but also as the means of paying for the large volume of consumption and capital goods which need to be obtained from abroad. The progressive curtailment and final closing off of most of continental Europe, constituting in recent years nearly 30 per cent of their aggregate markets, and supplying an even larger proportion of their import requirements, has naturally been a severe shock to their economies.[4]

Not all of the countries of Latin America have been equally affected. The influence of the war has been less marked in certain countries around the Gulf and the Caribbean, which normally find their major markets in the United States. On the other hand, products such as meat and wool found foreign markets better sustained in countries able to take delivery and pay for them, than commodities like coffee and bananas, the consumption of which has been materially restricted in many countries during wartime.

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[3] As observed also in the case of certain other parts of the world, the net effect of the developments of the past year upon the trade of the United States with the Far East has been more in the nature of a shift in the principal commodities involved, and in the local channels through which the trade was conducted, than in the total value of the trade. For the first eleven months of 1940, U. S. exports to Japan, as well as imports from that country, have run slightly ahead of 1939. With China as a whole, the volume of the merchandise moving, in both directions, has aggregated totals far in excess of those of the preceding year. For details of the products involved, see release of January 17, by Bureau of Foreign and Domestic Commerce, entitled "Trade of the United States with Japan, China, Hong Kong and Kwangtung, November 1940, and Eleven Months ending November."

[4] Latin American trade with Continental Europe was valued during the last pre-war year at about $500 million. The United States, the largest single market for Latin America as a whole, purchased not much less than all the countries of Continental Europe put together.

During the early months of the war, increased sales in the United States of various raw materials and other natural products, added to the British and French undertakings for large purchases, particularly of foods and fibers, and the temporary accessibility of the ports of Continental Europe, afforded most of these countries a fair prospect for the readjustment of their trade position. However, with the closing off of most of the continental markets in the spring of the year, and with the curtailment in the actual amounts of various commodities which Great Britain alone could take, the problem of undisposable surpluses and the limited exchange resources for financing imports became acute.

In the meantime, merchants in most countries of Latin America had turned to the United States for supplies and equipment not available from the usual sources. Viewing the experience of the first year of the war as a whole, the net outcome was that increases in sales to the United States of the products of the southern countries, substantial though they were (averaging 31%), usually lagged behind the greater increases in the volume of their purchases of United States products (averaging 50%).

Moreover, under the plan early developed by Great Britain, and for a time followed also by France, as a means of conserving foreign exchange, payment for their purchases from a number of important countries of Latin America was made into special accounts at London or Paris, which could be drawn upon only in payment of purchases from the sterling or franc areas, or for other financial settlements with them. This development of close bilateral trade arrangements with their principal export markets other than the United States, left the particular Latin American countries with relatively small amounts of free exchange with which to pay for their increased purchases from the United States, beyond the additional dollar exchange created by increased current sales of their products to the United States. This exchange situation constituted an outstanding obstacle to the generally desired expansion of trade between the countries of Latin America and the United States.

To a degree, shortage of foreign exchange has been a chronic condition for a number of the countries of Latin America in recent years, a situation that had already led many of them to the adoption of exchange controls and other restrictions on foreign trade. Under the aggravated situation resulting from the war, three additional South American countries resorted to strict systems of priorities among various products or classes of obligations in their allocation of available exchange (Colombia in April, Ecuador in June, and Venezuela in October); and several countries which had been exercising such control for some time, notably Argentina and Uruguay, ordered successive curtailments, with only occasional relaxations, of the exchange to be made available for imports from the United States for other than the most essential products.

Sharp increase in Brazilian purchases from the United States to replace products normally obtained elsewhere developed an import balance from this country, an unusual experience, which diminished Brazilian ability to make prompt payments. Peru, which has maintained its distinction among the countries of South America as having no formal control of foreign exchange, found it necessary to conserve exchange by increasing duties on a range of products considered luxuries or domestically replaceable, and by restricting the importation of certain cereals. Ecuador and Venezuela imposed permits on imports during the year, in connection with the enforcement of their new systems of exchange control, although the latter was clearly the determining method of regulating the course of their foreign trade.

Among the ten republics of Middle America, there were fewer developments in the way of material tightening of import controls during the year. Only three of them (Costa Rica, Honduras and Nicaragua) operate an exchange control, and no serious restrictions were reported on the part of any of them, beyond some delay in payments.

In addition to defensive measures of the type just indicated, the year saw exceptional steps and agitation for a variety of measures, designed either for immediate support or long-run improvement of the trade position of various American republics. Efforts to dispose of unmarketable surpluses brought several developments. Arrangements with Great Britain provided for substantial British war purchases of certain staple products of a number of the South American countries. Considerably increased purchases were made by the United States, partly under special national defense arrangements, particularly of wool, hides, manganese, copper, nitrates, mercury, and tin ore.

As the first of what its sponsors hope will prove a series of multilateral agreements for the better marketing and support of important staple products, an agreement regarding coffee, drafted by the Inter-American Financial and Economic Advisory Committee, was signed in November by representatives of 14 coffee producing countries of the Western Hemisphere and by the United States. It provided for a proration by quotas among the coffee exporting countries of Latin America of the most important market for this commodity, that of the United States, with an allotment set aside for markets other than the United States as they again become available. Work is now under way on a similar agreement respecting cacao.

Among the supporting measures of immediate application was the financial aid from the United States, in response to widespread calls to relieve the other American Republics in their trade difficulties arising from the war. Aggregating a total of over $200,000,000, loans or credits were granted by the United States Government in favor of Argentina, Brazil, Chile, Colombia, Haiti, Nicaragua, Panama, Paraguay, Peru and Uruguay. The individual grants varied in amount, and were intended for one or more of several purposes: to support or stabilize the local currencies, notably in the cases of Argentina and Brazil; to help finance current imports, particularly of machinery and other productive equipment, and to clear current accumulations of unpaid dollar drafts; and in a measure also for the long-term purpose of facilitating internal development projects.

Among the longer range measures, considerable attention was given during the year to arrangements for developing the natural resources of various countries of Latin America, and for promoting more and wider industrialization, and the improvement of transport facilities, in those countries affording promising prospects. In plans of this character, there was repeatedly stressed the importance of joint United States and local financial investment, and possibly also joint operation, to help insure soundness of projects and favorable national attitudes toward such enterprises.

The Inter-American Development Commission, an official agency set up during the year by the Inter-American Financial and Economic Advisory Committee, has assisted in the undertaking of two experimental projects, upon the outcome of which others may depend. These are the building in Brazil of large steel smelting and processing facilities and of a smaller plant for the processing of the locally-grown mandioca. Branches of the Development Commission are being formed in a number of the Latin American republics, to be composed primarily of outstanding business men, to propose promising new industrial enterprises, for joint United States-local financing.

The general programs for closer continental solidarity among the American Republics and for cooperative measures for their common defense and welfare, toward which long strides were taken at the two conferences of their foreign ministers thus far held, at Panama in October 1939, and at Havana in July 1940, have had also an important economic aspect. The Havana Declaration on Inter-American economics envisaged a broad program of many-sided cooperation between the American Republics in economic and financial matters. Particular emphasis was placed upon the disposal of surpluses and related problems, and upon the indispensability of mutual economic support against undesirable pressures from overseas. The maintenance so far as possible of the liberal and peaceful principles of international commerce was pledged.

LIFE INSURANCE

By Wendell M. Strong

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GENERAL

As in recent years, the year 1940 found the question of suitable investment of funds with a reasonable rate of return the most important and difficult problem facing the life insurance companies.

Although exact figures are not yet available, there appears to be a sizeable increase in the amount of insurance in force at the end of 1940 over that at the end of 1939. Other factors, such as amount of new business and increase in assets, were not in general much different in 1940 than in recent years.

The other outstanding features of 1940 so far as life insurance was concerned were the conclusion of the T.N.E.C. (Temporary National Economic Committee) investigation, the problem of the war hazard, the passage by the Government of laws regarding life insurance on the lives of members of its armed forces, the action of a committee appointed by the Insurance Commissioners to study non-forfeiture values, and the amendment of the New York State "escheat" law.

INVESTMENTS

Life insurance companies, as well as other financial institutions, have been finding it very difficult in recent years properly to invest their funds, and this difficulty in no way abated during 1940. By the very nature of its trusteeship and also by legal restrictions, the companies are limited to investments with a very high degree of safety and security. In addition to this, they are naturally obligated to obtain as high a yield as possible on such investments, first to fulfill the assumption of the policy contract which is based on a conservative interest rate, and secondly to reduce the cost of life insurance protection to the public.

However, it has proven to be exceedingly difficult to obtain safe investments with a reasonable return, and since the outlook for the future in this respect is none too bright, the companies found it increasingly necessary in 1940 to take steps to protect themselves. There were many increases in premium rates on annuities and single premium policies, and many companies discontinued various forms of investment contracts. In some cases the non-participating companies increased their premium rates to meet the anticipated low interest returns of the present and future.

ASSETS

For years the assets of the companies have been increasing, the rate of annual increase being about 5% in 1938 and 1939, and the year 1940 will probably also show an increase of 5% over 1939. This increase is due in most part to the large purchases of investment contracts in recent years and to the growing popularity of the optional Modes of Settlement under which the proceeds of life insurance policies can be left with the companies by the beneficiaries. Another factor is the reduction in policy terminations which, with a normal amount of new business, would result in an increase of assets.

Federal bonds will undoubtedly show the largest increase of assets in 1940 over 1939, and in view of probable future conditions including heavier government borrowing made necessary by national defense activities, holdings of these bonds will probably be increased further in the future. These bonds, although offering an inordinately low return, are desirable in that they are of a highly liquid form and of unsurpassed security.

NEW BUSINESS

The total amount of new insurance issued in 1939 was about the same as that in 1938, there actually being a decrease of only 1%, and it would appear now that the total new business for 1940 will show about the same as for 1939. New issues of ordinary insurance were approximately the same in 1940 as in 1939.

The amount of industrial insurance increased slightly as expected. In 1939 New York State insurance companies, which have about 80 per cent of the industrial insurance in force in the United States, were prohibited by law from issuing industrial endowment insurance. However, this restriction has been removed so far as writing such insurance outside New York State is concerned, and this probably accounts for the increase in amount of industrial insurance written in 1940.

Group insurance written in 1940 was somewhat less than that in 1939 but still considerably higher than that in 1938. The amount written in 1939 had been greater than expected.

INSURANCE IN FORCE

There was a slight increase in the total amount of insurance in force at the end of 1939 over that at the end of 1938, this tendency having been exhibited in the results for several years back. It is expected that the figures for the year 1940 will show a gain of about 3% in the amount of insurance in force, which is somewhat higher than that experienced in recent years. This increase in amount of insurance is probably due to the decrease in amount of insurance terminated in 1940 by surrender, lapse or maturity.

NEW INSURANCE

(Association of Life Insurance Presidents)
(40 companies having 82% of insurance in force in all
U. S. Companies on Dec. 31, 1938)
(Dollars in millions. First 11 months of each year)

	1938	1939	Per Cent Increase	1940	Per Cent Increase
Ordinary Insurance..........	$4,210.	$4,599.	9.2%	$4,614.	.3%
Industrial Insurance.........	1,953.	1,359.	−30.4%	1,439.	5.9%
Group Insurance............	385.	698.	81.2%	571.	−18.2%
Total Insurance.............	$6,548.	$6,656.	1.7%	$6,624.	— .5%

Note: This table is only for the purpose of showing the tendency, so far as it is known, for 1940. It corresponds only roughly with results for all insurance in all companies in previous completed years.

X. BUSINESS AND FINANCE

AMOUNT OF INSURANCE—ASSETS—INCOME—DISBURSEMENTS

(Including Ordinary, Industrial, and Group Business)
(*Insurance Year Book.* Dollars in millions)
All United States Companies

Year	Number of Companies	New Business	Amount in Force (End of Year)	Admitted Assets (End of Year)	(Surplus* End of Year)	Total Income	Total Disbursements
1939....	306	$12,516	$113,977	$29,243	$2,152	$5,453	$3,827
1938....	306	12,627	111,055	27,755	2,049	5,357	3,744
1937....	308	14,796	109,572	26,249	1,945	5,257	3,610
1936....	315	14,335	104,667	24,874	2,009	5,180	3,518
1935....	340	14,139	100,730	23,216	1,768	5,072	3,593
1934....	313	14,280	98,542	21,844	1,823	4,786	3,662

*Includes amount set apart for dividends to policyholders during following year.

ORDINARY INSURANCE

	1939	1938	1937	1936	1935	1934
Number of companies..............	$ 240	$ 240	$ 242	$ 250	$ 275	$ 248
Amount terminated by death.......	718	719	708	707	675	685
Amount terminated by surrender and lapse......................	3,653	4,213	3,758	4,046	5,094	6,138
Total amount terminated..........	5,657	6,191	5,659	6,106	7,426	8,868

INDUSTRIAL INSURANCE

(All U. S. Industrial Companies)
(*Insurance Year Book.* Dollars in millions)

Year	Number of Companies	Number of Policies (in millions)	New Business	Amount in Force (End of Year)	Amount Terminated by Death	Amount Terminated by Surrender and Lapse	Total Amount Terminated
1939......	66	88	$3,676	$21,140	$160	$2,805	$3,549
1938......	66	89	4,423	20,986	159	3,236	4,088
1937......	66	89	4,784	20,591	168	2,944	3,624
1936......	65	87	4,854	19,464	160	3,040	3,689
1935......	65	84	4,722	18,298	154	3,479	4,086
1934......	65	83	4,885	17,651	154	4,111	4,428

SURRENDERS AND POLICY LOANS

Both surrenders and policy loans decreased slightly during 1939, and this tendency will probably be followed in 1940. This in part may reflect improved economic conditions for policyholders. A factor probably accounting for a major part of the decrease in policy loans is undoubtedly the continually growing movement on the part of banks and other financial institutions to refund loans at a lower rate of interest than that provided for in insurance policies. This factor will be present so long as interest rates in the financial world remain low.

SURRENDERS AND LOANS

(New York Insurance Report)
(Companies Reporting to the State of New York. Dollars in millions)

Year	Number of Companies	Amount in force (End of Year)	Amount of Policies Surrendered*	Amount of Policies Lapsed*	Paid for Surrendered Policies	Policy Loans (End of Year)
1939	60	$77,955	$1,347	$1,164	$638	$2,718
1938	57	75,481	1,416	1,579	674	2,846
1937	57	74,814	1,241	1,430	578	2,855
1936	56	71,620	1,447	1,443	622	2,869
1935	51	69,350	1,966	1,740	772	2,989
1934	53	68,135	2,624	1,876	924	3,096

*Includes group insurance but not industrial.

PAYMENTS TO POLICYHOLDERS—INTEREST RATE

(Including Ordinary, Industrial, and Group Business)
(*Insurance Year Book.* Dollars in Millions)

All United States Companies							100 Companies
Year	Number of Companies	Premiums Received	Dividends Paid	Death Losses Paid	Surrenders and Lapses	Total Payments to Policyholders	Rate of Interest on Mean Invested Funds
1939	306	$3,825	$457	$943	$732	$2,642	4.25%
1938	306	3,800	447	934	771	2,578	4.33
1937	308	3,762	435	937	669	2,437	4.47
1936	315	3,683	418	919	713	2,429	4.49
1935	340	3,692	424	877	883	2,535	4.47
1934	313	3,521	438	875	1,078	2,705	4.68

DIVIDENDS

In general, dividend scales for dividends payable in 1941 will be about the same or slightly lower than for dividends payable in 1940. There will probably be very few increases. This is due in the main to the inability of the companies to obtain a reasonable return on their investments.

FRATERNAL INSURANCE

In most respects the year 1939 approximated that of 1938, the year finally ending with a slight decrease in the amount of insurance in force.

FRATERNAL INSURANCE

(All U. S. Fraternal Orders Showing Figures)
(*Insurance Year Book.* Dollars in Millions)

Year	Number of Orders	New Business	Amount in Force (End of Year)	Assets (End of Year)	Total Income	Total Disbursements	Net Amount Received from Members	Paid for Claims
1939	251	$560	$6,260	$1,199	$227	$167	$157	$115
1938	243	559	6,348	1,134	218	162	155	111
1937	255	666	6,333	1,098	224	166	159	117
1936	249	586	6,164	1,039	212	167	150	116
1935	266	563	6,183	994	205	159	152	111
1934	262	524	6,300	961	198	157	150	115

T.N.E.C. INVESTIGATION

The investigation of life insurance, which was begun in 1939 by the Temporary National Economic Committee of Congress as a part of its investigation of monopoly, was concluded in 1940 after taking more oral testimony and obtaining more completed questionnaires from the companies. The Committee's report and recommendations to Congress will not be forthcoming until 1941, so nothing definite can as yet be said about the results.

EUROPEAN WAR AND NATIONAL DEFENSE

The war has not as yet had any appreciable effect on the companies of this country, but the possibilities of the future, together with the continually increasing activities towards national defense, are of great importance and have received much attention during 1940.

Existing life insurance premiums do not take into account the extraordinary mortality which the conditions of modern warfare bring, and in recognition of this the National Association of Insurance Commissioners, at its meeting in June, recommended that in all new policies thereafter issued the war hazard be either excluded from the coverage or assumed only upon payment of an adequate extra premium. This met with a mixed reception in the insurance world, the general consensus being that the time was not opportune for such a radical change in life insurance contracts and that it should not be made unless there were more immediate danger to the companies, such as would occur if this country were to declare war. The situation, therefore, is about the same as it was in 1939—the great majority of policies are still being issued without any restrictions as to war coverage (except in disability and double indemnity provisions), and a war clause excluding the risk for, in general, a few years after issue is used in only a few cases (such as in policies for non-citizens and in policies above a small amount for members of the armed forces in this country).

Although there had been some agitation on the part of some Insurance Commissioners for a standard war clause, the National Association made no requirements in this respect, merely suggesting that there be uniformity amongst the clauses of the various companies.

The increase in the armed forces of this country, including the conscription of men between 21-35, brought about the passage by Congress of two laws which are of interest from a life insurance viewpoint. The first was the Soldiers' and Sailors' Civil Relief Act of 1940, which provides among other things that during the period of military or naval service of an insured applying for the benefits of the act and during the first year following termination of such service, any existing insurance totalling $5,000 or less shall not be lapsed or forfeited by an insurance company for non-payment of premium. The Government will issue to the companies certificates guaranteeing ultimate payment of the premiums falling due in such period which are not otherwise paid. The other law was the National Service Life Insurance Act of 1940 which deals with the issuance of government insurance to members of our armed forces. This provides for five-year term insurance up to $10,000 with the privilege of conversion to a permanent plan of insurance, all at net rates.

NON-FORFEITURE VALUES

In 1939 a committee formed at the instance of the Insurance Commissioners and composed of actuaries of State Insurance Departments and representatives of the two actuarial societies made a careful and exhaustive report on the question of the desirability of a new mortality table and its effect. It was concluded, among other things, that the net cost of insurance to policyholders in the aggregate would not be decreased by the use of a new table.

As an outgrowth of that report, the committee was reappointed to study the question of non-forfeiture values, which is closely related to the question of a new mortality table. It has not yet made a final report on the subject, but its preliminary reports issued in 1940 have proven to be of great interest and importance to the insurance world. Tentatively it has proposed that the basis of nonforfeiture benefits should be such as to recognize the nature of recent mortality and interest experience and the incidence of expense. Also, it suggests the elimination of the artificial connection between the bases for the determination of non-forfeiture values and of the reserve liabilities of the company, which, if any change is to be made, is of importance in view of declining interest rates. The final report of the committee is expected to be issued in 1941.

NEW YORK ESCHEAT LAW

The escheat law of 1939, covering so-called "unclaimed funds" of New York life insurance companies, contained several features which in the eyes of the companies were objectionable and in fact unconstitutional. To determine the question of constitutionality a test case was initiated in the New York courts but was dropped in 1940 on passage of an amended escheat law which eliminated some of the objectionable features of the 1939 law. Among the features of the new law were limitation of its application to sums in excess of $10 arising from policies of New York companies on the lives of residents of that state, exclusion of annuity contracts and reserves on outstanding policies, and assurance of complete indemnity to the companies against further contractual liability after payment of funds to the state.

FIRE INSURANCE

By Edward R. Hardy

Secretary-Treasurer, Insurance Institute of America, Inc.

FIRE LOSSES

The business of fire insurance from a financial standpoint has run so steadily for a period of ten years that in a sense it causes the management at times to be a bit nervous lest some disaster may be preparing. But up to the present time that has not happened and it is almost like reporting on those nations which are said to be so peaceful that "they have no history."

The record of fire losses in the United States is shown for the three years, 1938, 1939 and 1940, in the table set forth below.

	1938	1939	1940
January	$27,676,337	$27,615,316	$36,260,650
February	26,472,626	29,303,520	34,410,250
March	29,050,968	30,682,168	29,788,800
April	25,616,112	27,061,522	26,657,190
May	22,917,577	27,031,700	23,446,590
June	19,473,617	24,190,700	19,506,000
July	20,434,688	22,468,304	20,322,800
August	20,821,184	22,800,500	20,722,100
September	23,372,528	22,837,250	21,198,000
October	24,797,624	24,300,500	22,091,140
November	28,658,695	27,248,160	23,449,000
December	32,758,044	27,959,200	28,617,000
Total 12 months	$302,050,000	$313,498,840	$306,469,520

While the individual months show a variation, the entire 12 months show a very uniform condition for the three years. These statistics are furnished by the National Board of Fire Underwriters which is the accepted compiler for this work, covering losses due to fire and lightning.

GROUP STATISTICS, 1935-39

During the year there was published by the Business Development Office interesting statistics for a period of five years, 1935 to 1939 inclusive. This is a very close compilation which gives the premiums received, the losses paid, and the loss ratio annually for the years noted, these statistics being given for the various groups, as stock companies, mutual companies, reciprocal exchanges and Lloyds organizations. During these five years the trend from one group to another, especially stock to mutual, does not show a very great change. For instance, the ratio of premiums received by stock companies decreased from 85.1 per cent to 84.2 per cent of the total premiums received by all types of carriers, a change so small as to be practically unnoticeable for the group. In 1939 the total premiums written by all groups amounted to $961,806,529, while the losses paid were $395,605,376, the ratio of losses paid to premiums written being 41.1 per cent. In 1935 the loss ratio was 36.4 per cent, increasing to 39.4 per cent in 1936 and 39.5 per cent in 1937. It then took a jump to 43.9 per cent in 1938 and dropped a little to 41.1 per cent in 1939. As a rough measurement, losses up to 50 per cent in the olden days might have been absorbed. However, the decrease in income from investments affects this and perhaps a lower loss ratio might more normally be expected.

The tendency for expenses to increase has been noticeable and commented upon by the underwriters, but it is explained by the agents in the field and others who are employed by the companies by the fact that living costs tend to increase and the cost of doing business likewise; therefore, a decrease in the expense account can hardly be looked for.

The investigations have not seriously disturbed the fire insurance business, but it must be remembered that the total assets of the group writing fire and marine insurance amount to only $2,500,000,000, compared with the something over $22,000,000,000 of the life insurance companies; this constitutes what might be called, to use an old phrase, a mere bagatelle. And these assets are distributed among at least 200 companies.

WINDSTORM DAMAGE AND CLAIMS

During 1940 there were a few outstanding features in connection with the fire companies, where liability was carried for losses not arising from fire and/or lightning. First and foremost were the unusual losses, at least in number if not in amount, due to windstorm. Insurance against this hazard is almost entirely written by the fire insurance companies. There were substantial losses due to windstorm in Savannah and also in Louisiana, but these, both as to the number of claims and the amount of loss, were completely dwarfed by the losses in the northwest, where in the early part of November widespread windstorm damage was done, affecting 21 states. The total number of claims, closely estimated, amount to 125,000 and the average amount of the claim will be in the neighborhood of $20. It will be months before final statements are made, but these figures are not far out of the way. In those parts of the United States where heavy windstorms and hurricanes occur, it has been customary for property owners to carry insurance against loss due to these causes. When the new coverage was developed which provided for many forms of loss being included in one cover, it did not have much effect on the rates charged in these territories because windstorm losses were usually heavy. But the losses in the year were unusual in that they were felt over so large a spread of territory and the claims were so numerous. Needless to say, the necessity of settling each one of these claims individually makes a great deal of clerical work and increases the expense of handling the business.

EARTHQUAKE INSURANCE

It is a curious fact that, if there is a trembling of the earth, called an earthquake, it immediately creates a demand for earthquake insurance. That proved to be so the past year in and about New York. The earthquake was primarily felt in New Hampshire and other parts of the east and it was reflected in a call for earthquake insurance throughout the section. Very shortly after the earthquake, however, the demand entirely dies away and any attempt to sell this form of insurance in between earthquakes meets with very little success. A real good earthquake would probably lead to practically every property in the neighborhood being protected by insurance. On the Pacific Coast, where earthquakes are not uncommon, it is the practice to make provision against this form of loss.

TACOMA BRIDGE INSURANCE CLAIM

This extremely unusual disaster, which according to latest reports is leading the State of Washington to demand payment for a total loss, is raising some very interesting questions. There is a question as to which group of companies will pay the loss or whether there will be a sharing. This, however, is a matter between the groups of companies and does not affect the fact that the claim is very heavy. Probably the insurance companies will learn something about the underwriting of bridges when the full technical report on this bridge and the loss is completed. The French have a saying which insurance experience bears out that, "Whatever can happen, will happen," meaning thereby of course that it will happen sometime in the history of things. That is true of losses such as this bridge.

EXTENDED COVERAGE IN SINGLE POLICY

The tendency in the business of fire insurance is to develop broader forms and thus make it possible in a single piece of paper for a person to have protection against nine or ten different forms of loss and not be obliged to have a separate policy to cover each form. Undoubtedly the business of fire insurance, with its power to write other forms of property loss, will show this tendency during the next few years in a marked degree.

MARINE INSURANCE

BY HENRY H. REED

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INLAND MARINE

Premium Income.—In this important field the premium income for the year 1939 amounted to $43,491,847 which is only a slight falling off from the previous year of 1938, when the premiums totalled $43,645,236. One of the reasons for this slight decline in premium volume is probably to be found in a full year's application of the Personal Jewelry and Fur Floater rates which were reduced during 1938. Losses for the 1939 period totalled $17,787,729 or 40.8 per cent of the net premiums, as compared with 1938 losses of $17,928,287 or 41.1 per cent of the net premium; so, while the premium income was not quite up to 1938, underwriters of Inland Marine business enjoyed a satisfactory year when comparing premiums received to losses paid. From present indications it would appear that 1940 will show an increased volume of premium, the greater part of which must be ascribed to conditions brought about, directly or indirectly, by the war, although it is yet too soon accurately to forecast the results of the current year.

Tacoma Bridge.—The outstanding event of the year 1941 was unquestionably the failure of the Tacoma Narrows Bridge, a modern suspension bridge spanning an arm of Puget Sound in the State of Washington. As yet the extent of the loss is undetermined, but will undoubtedly be large, as current estimates range from 50 to 100 per cent. The insurance on this structure, which was written on the usual form of bridge policy, amounted to $5,200,000 property damage coverage, as well as $250,000 Use and Occupancy, covering the loss of toll revenue. A ferry service has been established near the site of the bridge to take care of traffic, and should at the same time, serve substantially to reduce the loss of toll revenue.

Midtown Tunnel Underwriting.—On the underwriting side of the ledger, the event of major importance was the insuring of the Queens Midtown Vehicular Tunnel for the New York City Tunnel Authority. This structure, completed and opened to traffic in November, 1940, is insured under the usual multi-risk form of policy by a number of companies for $18,000,000 Property Damage and $4,000,000 as the maximum Use and Occupancy.

Fine Arts insurance written in 1939 on a syndicated basis to cover the exhibition of Old Masters at the New York World's Fair was continued through the 1940 Fair season. The amount of insurance in 1940 was reduced to $14,100,000 from the $27,000,000 which was made available in 1939. As before, there were 35 individual companies sharing the risk, although in 1940 the largest single subscription was $1,700,000.

OCEAN MARINE

Premium.—While it is not possible at this time to give any accurate idea of the actual premium for the year 1940 it can reasonably be expected that it may be an even better year than 1939, for which the published Ocean Marine premium figures for Stock Companies only, showed $47,702,893, an increase over 1938 of $12,801,170 or 36.68 per cent. The published loss figures for 1939 showed losses aggregating $19,583,536, a decrease over the previous year of $3,447,098 or 14.96 per cent.

Moderate Ship Casualties.—The year, astonishing as it may seem, was remarkably free of major casualties from sea perils, accounted for no doubt by the fact that so many vessels have been taken over for government service, but in spite of this the large number of ships that remained in ordinary trade routes have done exceptionally well.

Foreign Tonnage.—Underwriters have been called upon to reorganize their ideas of lines they were willing to carry, and some extraordinary vessels have entered the Trans-Atlantic and Far East sea routes. A great deal of Norwegian tonnage, Dutch, Belgium, etc. has been operating in conjunction with the British, and British vessels have to a large extent been withdrawn from ordinary trade routes so as to serve the military needs of the Empire.

War Zone Shipping.—American ships were prohibited from entering the war zones which have gradually been increased until practically all European and Mediterranean waters were involved. This has necessitated a large movement of tobacco from the eastern Mediterranean, and other high valued cargoes from that part of the world, to come forward largely by Greek vessels, many very old ones. There were also Rumanian, Yugoslavian, and other ships whose flags are seldom seen in American ports, arriving with huge inward cargoes and loading outward with high valued general cargo. Tonnage of this type has naturally required stout additional rates for ordinary sea perils.

The situation was further complicated by Italy's attack on Greece, which seemingly has proved to be such a boomerang to Italy. This has necessitated the routing of enormous cargoes *via* Suez, and with delicate commodities such as cigarette tobacco involved, the additional length of the voyage around the Cape of Good Hope, together with the changes in temperature involving sweat risks, etc., have given underwriters ample cause for worry.

One of the Marine Underwriters' principal duties has been to provide coverage on the enormous movements of rubber, tin, antimony, tungsten, and other essential defense supplies which are being brought in to build up reserves in this country of materials which are not produced here.

In addition to these supplies which must be imported, the Government has made arrangements for bringing in a vast amount of Australian wool for account of the British, Marine insurance contract on this having been awarded on Dec. 10 to a group of companies making the lowest bid. All in all, 20 bids were submitted by Marine insurance brokers in various parts of the country on a highly competitive basis; the final results being that the insurance was placed at a rate lower than many of the underwriters think it is possible to write the business.

AMERICAN CARGO WAR RISK REINSURANCE EXCHANGE

In the 1939 summary it was stated that the year 1939 would undoubtedly go down in the history of Marine insurance as a memorable one from the point of view of the organization in the Insurance market of the American Cargo War Risk Reinsurance Exchange to take care of War Risk insurance. During the terrible spring of 1940 and all that has occurred since, the great worth of this Exchange was amply demonstrated. In all cases the needs of American commerce have been promptly and efficiently cared for. The delays and uncertainties that surrounded the placing of War Risk insurance during the World War have been almost wholly eliminated. The shipper or importer, through his broker, has been able to get his War Risk coverage promptly and, by and large, at probably lesser premiums than would have existed over the business as a whole if the underwriting had been done with each company going its own way, as was the case from 1914 to 1918. The Exchange has met with numerous trade associations and discussed the problems of War Risk insurance in such a way that mutually satisfactory arrangements have been made to take care of the special problems that have arisen in certain trades. Suffice it to say that if there were any doubts in the minds of either underwriters or brokers or assureds as to the value of such an exchange to American business generally, the experience of the past year amply demonstrated that the arrangement is a sound and practical one.

AMERICAN CARGO MARINE REINSURANCE CLEARING HOUSE

In June, 1940, following the example of the London market in providing for even remote contingencies, a number of Marine underwriters formed the American Cargo Marine Reinsurance Clearing House as a basis for excess reinsurance should circumstances make such facilities an absolute necessity. While the Association is now functioning, with some of the leading cargo insuring companies having joined, it is too early to report any results as it is just about getting under way. It is thought, however, that the Clearing House will continue in existence and serve many useful functions, including the clearing of share and specific reinsurance in the American market, totally aside from any possibility of more serious trouble abroad. There is, however, no prospect or intention, short of grave necessity, that the Clearing House will disrupt the relationship which has existed between American underwriters and their Cover underwriters in London for so many years.

GOLD SHIPMENTS

Again in 1940, particularly the earlier part of the year, the huge movement of gold which started in 1939 continued for many months, and the countries on the Continent now under the German heel, sent huge stores of treasure to the United States for safekeeping. Fortunately for Marine underwriters, the movement was made successfully in spite of the hazards of navigation during war times. One serious situation developed, however, when the Germans took in the Finnish steamer, the *Ester Thorden* to Tromsoe, Norway, with gold aboard. Later the vessel was released and returned to Petsamo, and the shipment was again likewise released.

HULLS

The year 1940 has been a reasonably good one for the Hull market. Losses again have not been startling, and the promise which the year 1939 gave for further increased premium was more than fulfilled. This increase in premium is principally due to the following factors: 1. American owners taking advantage of the increased capacity of the American Marine Insurance Syndicate; 2. the increased number of new vessels being placed in commission by reason of the progress of the Maritime Commission's program; 3. increases in values of existing tonnage; 4. preference for American, as opposed to foreign, security by reason of the war.

The nominal run of losses can be accounted for by the fact that vessels are in comparatively "easy" runs due to the restrictions of the Neutrality Law. There is not any North Atlantic trade to Europe, with the consequent cessation of heavy weather claims common to that trade.

During 1940 an event of major importance was the passing of the Bland Bill by Congress. In addition to making provision for the Maritime Commission to form an Insurance Bureau for the insurance or reinsurance of War Risks on American hulls or cargoes aboard such hulls, it also provides for reinsurance of Marine risks on American flag vessels and cargoes. The purpose of this bill is to ensure adequate insurance facilities for the American owner and merchant if the existing commercial market can not supply their needs. To date there has not been any reason to take advantage of the terms of the bill. Another event of major importance was the action taken by the American Marine Insurance Syndicates in June, increasing its capacity for War Risks up to $4,000,000.

As regards Foreign flag business, both Marine and War, while there has been some little activity from time to time, this has not amounted to much in terms of premium income, and the failure of this business to find its way to this market has been disappointing.

The season just closed on the Great Lakes was a very active one, and until early November the prospects for a good underwriting year were excellent. It is to be feared, however, that the severe storm of Nov. 11 which took a heavy toll of shipping, has ruined what promised to be a profitable year.

The Coastwise, Great Lakes and Inland Hull Association, which came into being in May 1939, has continued to function satisfactorily and added to its membership during the year.

SUMMARY

Unquestionably when the year is finished, 1940 will show a very much larger total premium income compared to 1939. This increase, while very largely due to War Risk premiums, is accounted for to some extent by huge importations of materials needed for American defense. This increase in volume of Marine premium was not only most welcome but most unexpected, in view of the absolute cessation of commerce to and from practically the entire continent of Europe since its German occupation. It is impossible, of course, for underwriters to foretell at any time the future of overseas commerce with any degree of accuracy even during the days of peace. To make any prognostication for the future at this time, however, would be the height of folly. The course of any war is at best uncertain, and with the various wars actually in progress affecting almost the entire surface of the earth barring the Western Hemisphere, those who study the question of Marine insurance and overseas commerce generally must view the future with anxiety.

CASUALTY INSURANCE AND CORPORATE SURETYSHIP

By G. F. Michelbacher

Vice-President, Great American Indemnity Co.

GENERAL

It has become the custom each year to record the known facts with regard to the experience of the preceding year. This information, available about mid-year, in the present instance, is compiled from the 1939 Casualty Experience Exhibits of 77 stock insurance companies as filed with the New York Insurance Department. Since this group of companies writes the bulk of the nation-wide casualty insurance and bonding business, the following exhibit of their combined underwriting results may be regarded as typical:

CASUALTY EXPERIENCE EXHIBIT

(Year ended Dec. 31, 1939)

Line of Coverage	Earned Premiums	Incurred Losses Excluding Claim Expenses	Incurred Expenses Including Claim Expenses	Underwriting Profit (+) or Loss (−)
Accident	36,907,101	14,139,601	19,662,815	+ 3,104,685
Health	21,574,088	14,329,761	7,802,817	− 558,490
Automobile Public Liab.	171,950,001	74,726,680	83,560,529	+13,662,792
Automobile Property Damage Liability	47,834,828	21,196,275	25,228,226	+ 1,410,327
Automobile Collision	3,052,880	1,334,000	1,604,646	+ 114,234
Public Liability (Other than Automobile)	72,914,296	23,883,548	44,050,240	+ 4,980,505
Property Damage Liab. and Collision (Other than Automobile)	4,610,345	1,069,271	2,450,609	+ 1,090,465
Workmen's Compensation	130,675,733	71,647,994	55,835,257	+ 3,192,482
Fidelity	36,877,718	7,967,869	21,608,655	+ 7,301,194
Surety	43,202,032	8,919,845	28,080,977	+ 6,201,210
Plate Glass	9,312,385	3,810,998	5,550,077	− 48,690
Burglary and Robbery	24,071,404	5,651,024	13,741,945	+ 4,678,435
Boiler	7,662,792	863,367	6,923,804	− 124,379
Machinery	3,710,951	801,432	2,399,589	+ 509,930
Credit	2,402,283	544,244	1,601,623	+ 256,416
Sprinkler Leakage	613,479	165,402	355,622	+ 92,455
Miscellaneous	1,820,612	1,634,473	544,046	− 357,907
Total for 1939 (77 stock companies)	619,192,928	252,685,784	321,001,480	+45,505,664
Total for 1938 (66 stock companies)	602,542,318	237,553,212	310,393,797	+54,595,309
Total for 1937 (64 stock companies)	610,729,241	254.752,730	305,713,261	+50,263.250
Total for 1936 (59 stock companies)	554,818,613	245,318,918	277,449,561	+32,050,134

It is unfortunate that the underwriting experience for 1939 and prior years does not represent consistently the results of the same group of insurance companies. The fact that the composition of the group has changed and that the number of reporting companies has increased from 59 in 1936 to 77 in 1939 vitiates any attempted comparison of totals year by year. It is probably true, however, with regard to the business as a whole, that 1939 witnessed a slight increase in premium volume and a certain reduction in underwriting profit as compared with 1938.

The year 1940 will probably see another moderate advance in premiums, although present indications are that there will be wide fluctuations in results as between the several companies. For the first half of the year, rate reductions, coupled with limited activity in business and industry, caused many companies to lose ground in production. The trend was reversed during the last half of the year largely under the stimulus of the National Defense Program. The full effects of the latter program have yet to be felt and 1941 will probably bring a substantially larger volume of premiums in all lines. Unfortunately, however, the underwriting results will be somewhat less favorable in 1940 than they were in any of the three preceding years. The present is definitely a period of gradually reducing profits which, from all current indications, will continue for some time.

AUTOMOBILE INSURANCE

There was no startling developments in this field during 1940. Conditions continue to be somewhat chaotic with intense competitive rivalry between "conference" and "non-conference" companies. "Conference" companies have extended their program, which may be summed up as one providing increasingly broad insurance coverage at decreasing cost to policyholders. In fact, there is some question whether existing rates are, on the whole, adequate for the obligations assumed by the companies.

The special plans for rating "private passenger" automobiles, involving classification according to business use, mileage and age of driver, with a reward for "safe driving" are still in force and, in addition, there have been manual rate reductions ranging from 5 to 25 per cent in various territories.

"Commercial" automobile rates have been substantially reduced (approximately 15 per cent on the average, countrywide). This reduction was accomplished in large part by the establishment of a new classification (Class 5) for all commercial vehicles except those specifically assigned to higher-rated classifications. Rates for "long haul trucking" risks, once regarded as extremely hazardous, have been reduced 10 to 25 per cent in the several states. This was done on the basis of improved experience, which seems to indicate that the safety regulations of the Interstate Commerce Commission and various state authorities have begun to bear fruit in reduced accident frequency and severity ratios.

Policy coverage has been broadened in numerous instances, indicating a desire on the part of insurance companies to meet every legitimate demand for improved protection. Thus: 1. commercial policies have been extended to cover policyholders' trailers while they are being hauled by motor units owned by other interests; 2. automobile medical payments coverage (guaranteeing medical payments to occupants of policyholders' cars who may be injured as a result of an accident) has been broadened to include the policyholder himself; 3. a new schedule automobile policy has been devised to provide in a single contract a combination of coverages for motor vehicles owned by the policyholder, for motor vehicles hired by the policyholder, and for "non-ownership" liability of the policyholder (protection against claims resulting from the use of automobiles owned by employees in the policyholder's business).

Several states have inaugurated assigned risk programs under which insurance companies have voluntarily agreed to assume the risks of automobile owners who are required to carry insurance by virtue of financial responsibility or compulsory insurance requirements. Private insurance companies have cooperated in these programs in order to eliminate the demand for some form of state insurance. Assigned risks are allocated to the cooperating companies in proportion to their automobile premium volumes within the state.

As yet, no other state has followed Massachusetts into the field of compulsory automobile insurance, although the demand for some solution of the problem of the uninsured and financially irresponsible automobile owner is increasing. In spite of all the efforts of insurance companies and state officials, it is probably true that not more than 30 per cent of the private pleasure automobiles operating upon the highways of this country are "insured."

WORKMEN'S COMPENSATION INSURANCE

A workmen's compensation insurance law became effective in Arkansas on Dec. 5, 1940 after ratification by the voters of the state at the Nov. 5 general election. This leaves Mississippi as the single state adhering to the ancient principle of "employers' liability."

Workmen's compensation insurance rates are under constant attention by several rating organizations, and annual revisions upon the basis of accumulated statistical experience are regularly made. During 1940, such revised rates were promulgated for 32 states and the District of Columbia. The trend has been generally downward. Rates were increased in only one state (New Jersey, 2.4 per cent). In all other cases rates were reduced, the reduction ranging from 1.9 per cent in Maine to 11.5 per cent in Nebraska. Over all, it is estimated that the countrywide rate level was reduced approximately 6 per cent (a somewhat greater reduction than was made in the preceding year). With increasing industrial activity, which usually brings a sharp rise in accident frequency and severity ratios, this reduced rate level may appear temporarily to be somewhat inadequate. In any event, it is certain that the companies will cease to enjoy the favorable underwriting results of the past few years.

A new plan of experience rating, popularly known as the "multi-split experience rating plan," was promulgated to become effective in many states on Jan. 1, 1941. This plan, like its predecessor, used the actual past experience of individual risks for the purpose of determining, prospectively, a variation from the "average" or "manual" rate for the classification into which the risk falls. In this case, however, greater weight is given to frequency of accidents than to the actual losses experienced by the individual risk. While the aggregate results are expected to be approximately the same as those produced by the old plan, the new plan is simpler of application, and the adjusted rates produced are not only more defensible but also reflect with greater accuracy the hazard characteristics of individual risks.

The Retrospective Rating Plan has been winning favor with large policyholders and state insurance departments, as is demonstrated by the rapidly-growing numbers of risks brought under this plan of rating. In many jurisdictions, risks with annual "standard" premiums as low as $1,000 are now eligible for retrospective rating, and the "waiver" plan, under which the debit premium in excess of the standard premium may be waived upon payment of a specified charge, is being gradually extended to additional states. Retrospective rating is a device which enables a large policyholder to establish the premium of his risk, within maximum and minimum limitations, upon the basis of the actual experience of the current policy period. In general, it has produced a reduced cost of approximately 20 per cent of the standard premium for the risks to which it has been applied.

The principle of holding private insurance companies responsible for insuring "undesirable" risks seems certain to become a requirement wherever companies of this class are permitted to operate without competition from a state insurance fund. It might be expected that these risks (which must have been declined by at least three companies to qualify for assignment) would produce an adverse experience. Strangely enough, however, the experience of assigned risks in the various "pools" which have been established does not always appear unsatisfactory during the earlier years. Eventually, however, the loss experience finds its proper level, and such pooling arrangements as exist demonstrate this very clearly in spite of savings in expenses created, for example, by the requirement that no commission shall be paid to producers for any business which is "assigned." This adverse experience is the price private companies must pay for the privilege of writing workmen's compensation insurance without state competition.

MISCELLANEOUS PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE

Extensive manual revisions for these lines were promulgated during the year by the National Bureau of Casualty and Surety Underwriters. In addition to rate changes designed to bring rates into line with the latest experience, the Manual of Liability Insurance was dropped, and four new completely self-contained manuals were substituted, covering, respectively, the following lines of insurance: 1. Owners', Landlords' and Tenants' Liability Insurance; 2. Elevator Liability Insurance; 3. Products Liability Insurance; 4. Contractual, Manufacturers' and Contractors', Owners' or Contractors' Protective, and Teams Liability Insurance.

Rate changes may be summarized as follows: Elevator public liability rates, rating territories increased from 7 to 30, rates increased in some territories and reduced in others, with a total countrywide reduction in rate level of approximately 1 per cent; Elevator property damage liability rates reduced, countrywide, approximately 20 per cent; Elevator collision rates reduced, countrywide, approximately 50 per cent; Products public liability rates reduced in many territories, countrywide reduction approximately 17.6 per cent; Products property damage liability rates for entire country reduced between 35 and 40 per cent. Rates for excess limits coverage for products liability, elevator liability and owners', landlords' and tenants' liability insurance were reduced. As a result, policyholders requiring protection beyond the standard limits for all of these classes of coverage are now paying a lower premium for their excess limit protection.

Revisions of rules and classifications have been so extensive that only a few of the more noteworthy changes may be mentioned:

1. Under owners', landlords' and tenants', and manufacturers' and contractors' policies, the alteration permit rules have been amended to permit inclusion of coverage for "new construction work when performed at the insured premises where other buildings or structures of the insured are located."

2. Owners', landlords' and tenants' coverage for residences, estates and farms has been broadened to include, without charge, buildings occupied exclusively by the insured's servants and located on the residence, dwelling, or farm premises. The definition of additional private residences or dwellings has been broadened to apply in connection with "any other premises" rated under the manual and covered under the same policy. The Landlords' Protective Liability rule has been amended to apply to premises sold under contract or conditional sales agreements.

3. The rules for employers' liability coverage on domestic servants, including immediate medical and surgical relief, when written concurrently with owners', landlords' and tenants' bodily injury liability insurance for the insured's residence premises, other than farms, have been extended to apply to private estates.

4. In the Elevator Liability Manual the definition of a one-story elevator has been clarified, the Landlords' Protective Liability rule has been amended in the same manner as for owners, landlords and tenants, and the freight escalator classification has

been eliminated. Freight escalators will now be covered without charge under manufacturers' and contractors' and owners', landlords' and tenants' policies.

5. In the Product Liability Manual a new rule has been adopted regarding coverage of vendors as additional interests for policies covering manufacturers and distributors as named insured. The product liability classifications have been completely revised and now refer to products for manufacturers and packers. New classifications have been established for risks that manufacture and sell their own products through their own retail stores.

In addition, considerable progress has been made in the development of comprehensive liability insurance policies (a vehicle for providing complete liability protection for larger risks) and in bringing about a needed uniformity in the liability insurance contracts issued by conference companies.

BURGLARY, THEFT AND ROBBERY INSURANCE

Progress continues to be made in this department toward broader coverages which recognize the needs of different classes of policyholders. On June 17, 1940 the policy available to residents of homes and apartments was re-drafted with resulting extensions of coverage, as follows:

1. The full amount of coverage named in the policy now applies to the property of persons other than the policyholder. Heretofore, only 25 per cent of the coverage was so applicable.
2. Whereas the policy formerly covered property of the policyholder placed in a safe deposit box, such "outside" coverage has now been extended to property removed to a public warehouse or to another occupied residence for safe-keeping.
3. Coverage for damage to the insured premises has been broadened to include all interior damage caused by vandalism or malicious mischief.
4. The personal hold-up (robbery) coverage has been amended to cover loss by theft.

During the year, a new policy known as "Comprehensive Dishonesty, Disappearance and Destruction Policy" was placed upon the market. A feature of this policy is that it makes available in one contract five casualty and bonding coverages heretofore available only under separate policies, as follows: 1. Commercial blanket bond, 2. Messenger all-risk, 3. Premises all-risk, 4. All-risk safe deposit box, 5. Forgery.

The premium for this new policy is somewhat lower than the sum of the separate premiums for the five coverages. In addition, the new policy is advantageous to the policyholder because the coverage stated in each of the five insuring paragraphs applies to all of the policyholder's messengers or locations, even though the premium is computed on the actual exposures as and where they exist. For example, if, at the principal location, the exposure is $100,000 and if, at each of four other locations, the exposure is $1,000, the premium is computed on these actual exposures, but the policy provides coverage in the amount of $100,000 at each of the five locations.

ACCIDENT AND HEALTH INSURANCE

There was a substantial increase in premium volume in this department during 1940 amounting probably to as much as 10 per cent over the production of the preceding year.

Companies generally have made concessions to persons entering the military or naval service of the United States. Pro rata rather than short rate cancellation is permitted where such persons choose to terminate insurance. In addition, the change in occupation caused by entering military or naval service (except where service is in the aviation or submarine branches) will not be used as a pretext for pro-rata benefits provided the loss does not result from enemy invasion or bombardment and occurs while the policyholder is serving on land within the boundaries of the Continental United States, Puerto Rico, or Hawaii.

Hospitalization coverages, as issued by both non-profit associations and commercial insurance companies, is now in the stage of re-adjustment. Accumulated experience has demonstrated the necessity for curtailment of benefits, or increase in rates, or both. Those companies which rushed into this field with policies providing liberal benefits at competitive rates have learned the usual lesson, and the experience was rather painful in some cases.

Aviation accident coverage is a rapidly-expanding business as various classes of pilots and air travelers recognize the value of this form of protection. The Civil Aeronautics Authority Civilian Pilot Training Program provides that students must obtain insurance of $3.000 principal sum and $500 medical benefits, and this requirement has resulted in a very substantial volume of premiums for the companies writing business in the aviation field.

FIDELITY AND SURETY BONDS

During the first half of the year, this department reported that business was abnormally "slack." Then came the National Defense Program and with it an extraordinary demand for corporate suretyship in large amounts to guarantee the performance of contracts of all kinds as well as the faithful accounting for huge sums of money advanced for the construction and equipment of additional plant facilities. In one instance, suretyship aggregating something in excess of $50,000,000 was required in connection with a group of contracts for airplane engines, airplane propellers, and aircraft. The companies met this emergency with courage and efficiency and thus demonstrated once more that private business enterprise may be counted upon to do its bit in times of national stress.

As a result of this sudden spurt of activity, the bonding premium volume of 1940 may be expected to approach the volume of 1939, and it may be anticipated that the underwriting results will be more favorable since sufficient time has not elapsed to disclose what the ultimate experience under defense contracts is going to be. It is probable that the experience on the first group of projects embraced within the Defense Program will be excellent as only the strongest (financially), most competent and best-equipped contractors and manufacturers will be used. Later, if the program should expand to the point where facilities are required under pressure and additional contractors and manufacturers are impressed into service, the problem for surety companies may become far more difficult.

Incidentally, this situation has demonstrated the strength of "conference" companies. In several instances where "non-conference" companies had been providing suretyship for large manufacturers and contractors, the requirements of the Defense Program were so large as to make it impossible for the non-conference companies to meet them. Conference companies were called in to meet these situations and it is needless to say that these risks will hereafter remain with the companies which were able to be of service in time of need.

FINANCIAL CHRONOLOGY, 1940

(From *The New York Times*)

Jan. 1—Major victory of Finns over Russians in Central Finland.

Jan. 2—New Year opens on stock market with advance of ⅞ point in averages. Trading only 579,000 shares, smallest full day in nearly a month.

Jan. 3—President's regular message to Congress, chiefly devoted to American duty during European war. Refers contemptuously (but in allusion to European dictators) to "doctrines which set group against group" and "class against class." Also alludes to "rabble-rousing slogans." Stock trading 1,020,000 shares, averages up 1¾ points, down ⅝. Bond averages rise ⅜ to highest since March 14, 1939. Reinvestment demand noted. Steel output rises from 74 per cent of capacity to 86, against 94½ in November.

Jan. 4—President submits budget message, asking $460,000,000 to be raised by new taxes for Army and Navy expenditure. Estimates public expenditure fiscal year 1940 to have surpassed record, being $5,235,708,719 above 1933, increase of 145⅜ per cent.

Jan. 8—Crushing defeat of Russian Army in Finland; Scandinavian bonds advance. Conference of Italian Foreign Minister Ciano and Hungarian Foreign Minister Czaki with view to strengthening Balkan resistance to Soviet invasion.

Jan. 9—Chamberlain pledges aid to Finland which will be "no mere formality"; also warns of "a phase of this war much grimmer than we have seen yet." London and Paris stock markets irregular; New York stock averages down 1⅝ points, largest decline since Nov. 24. Finnish victories continue; Finland dollar 6s up 5 points to 45.

Jan. 10—London and Paris markets weak; N. Y. recovers slightly.

Jan. 11—Break in security and commodity markets; stock averages decline 1¼ points, wheat 2¼¢, cotton down from 11.45¢ to 11.26. Stock trading 884,000 shares.

Jan. 15—Rumors Germans may invade Holland and Belgium. Belgian dollar 6s and 6½s decline 3½ points. Norwegian and Danish bonds ⅜ @ 3¼. European markets weak, but Amsterdam steady. N. Y. stock averages fall 1⅝ points, recover 1⅛. Wheat recovers 2⅛¢ on war scare. Dutch guilder falls from 53.55¢ to 53.23.

Jan. 16—"Low Country war scare" wanes; European markets stronger; but Belgian bonds decline ⅝ @ 1 point, Scandinavians ⅝ @ 4. N. Y. averages 1⅛ higher. Wheat rises ½¢, then declines 1⅞. Dutch exchange declines to 53.18¢; month's highest 54.42½.

Jan. 17—European markets steady; Belgian and Scandinavian bonds recover, except Norwegian. Wheat recovers 2⅜¢. Steel production declines from 86% to 85.

Jan. 20—"Neutral war scare" ends with recovery, from week's lowest, of ½ @ 2⅛ points in Belgian dollar bonds, 1⅞ @ 2⅝ in Danish and 3 @ 5½ in Norwegian.

Jan. 24—Wheat recovers ⅞¢; spot cotton to 10.89¢. Stock averages rise 1⅛ points on largest trading since Jan. 15. Bonds stronger. Steel output down from 85% to 82.

Jan. 29—Wheat falls 2⅜¢ to 96¾¢ for May; lowest since Dec. 13. Pound sterling rises to $4, not reached since Nov. 3. Had fallen to $3.76⅛ on Nov. 9; ended 1939 at $3.95¾.

Jan. 30—Hitler makes scornful speech; no effect on markets. U. S. Steel report shows largest December quarter net earnings and excess over charges since 1929, and excess for calendar year 1939 largest since

1930, except 1937 and 1936. Wheat down to 96⅛¢, lowest since Dec. 12.

Jan. 31—Chamberlain in London speech emphasizes military strength Allies compared 1914. Steel output down from 82% to 77, lowest since Sept. 13.

Feb. 5—Wheat rises 1¢, corn 1¼. Finland dollar 6s rise 1½; Scandinavian dollar bonds up ½ @ ⅞.

Feb. 7—Steel output down from 77% to 71½, lowest since Sept. 13.

Feb. 8—Stock averages up 1¼, largest rise since Dec. 29; trading 867,000 shares, largest since 1,109,460 of Jan. 12. Turkey seized Krupp munitions works at Golden Horn. Wheat rises 1⅞¢ to 99⅞, highest since Jan. 25.

Feb. 13—Russians break through Finland front line; but Finland dollar 6s rise 3 points to 48, against 32 in December.

Feb. 14—Steel production down from 71½% to 68½, comparing with 55 for same week in 1939 and 31 in 1938. Finland dollar 6s rise 2 points to 50.

Feb. 16—J. P. Morgan & Co. announce conversion of the house from private banking partnership to incorporated State bank. Finland Army is more hard-pressed; Finnish 6s down 1 point to 47, making 3-point decline in two days. Wheat rises 4¾¢ to $1.04½, highest since Jan. 5.

Feb. 17—Finland 6s decline at week-end to 44½, against 45 at previous week-end.

Feb. 19—Finns hard-pressed on Mannerheim line, defeat Russians in North. Finland dollar 6s up ⅛ to 44⅝.

Feb. 20—May wheat rises 4¼¢ to $1.07, highest since Jan. 3, but reacts to $1.04. Finland 6s down ½ point to 44⅛.

Feb. 21—Wheat up 2⅝¢, down 1⅛, on broadest trading since December. Finland 6s recover to 44½. Steel production down from 68½% to 67.

Feb. 23—Wheat rises to $1.07¼; Finland 6s sell for cash at 49.

Feb. 26—Exchange on Sweden remains unchanged. Russian advance reported on Mannerheim line, but Finland dollar 6s advance 4 points to 48½, against year's lowest of 40 and highest of 50. Under-Secretary of State Sumner Welles begins his "fact-finding" trip by conference with Mussolini at Rome.

Feb. 28—Russians drive further into Finland. Finn dollar 6s decline 1½ points to 47; Danish and Norwegian dollar bonds down 2 @ 5⅛ points. Steel production 65%, against 67, but Iron Age reports "a noticeable change for the better in the volume of new steel orders."

Feb. 29—Finland lines give way. Finland dollar 6s decline 2 points to 45, against year's lowest of 40. Danish and Norwegian bonds recover ½ to 1½ points.

Mar. 1—Wheat declines 1⅝¢ to $1.00⅜. Dollar bonds Denmark and Norway rise 1 @ 3 points.

Mar. 2—Under-Secretary of State Sumner Welles, on his "fact-finding mission" to European leaders, talks with Hitler.

Mar. 4—Heavy storm. May wheat at 99¾¢. Sterling falls 2¢ to $3.91, lowest since Dec. 11, on report British Treasury will require British importers to buy exchange at official rate, which was about 10¢ above free-market rate. U. S. Treasury places $100,667,000 3-months discounted bills at par; thus paying no interest.

Mar. 5—British Government announces £300,000,000 war loan at par, maturing 1959, redeemable at par after Oct. 15, 1955; to be formally offered March 12, subscription lists to close March 13. Sterling falls to $3.89, lowest since Nov. 30. May wheat recovers 3⅜¢ to $1.03⅞, against 99¾ March 2, year's low to date 95½ Feb. 1, year's high $1.07¼ Feb. 23.

Mar. 6—Sterling recovers 1⅝¢ to 3.91⅞. Rumored Swedish mediation to end Finland war. Finland dollar bonds unquoted, Norway and Denmark bonds rise 1⅛ @ 2¼ points.

Steel output 63½%, against 65 previous week, 77½ first week February.

Mar. 7—Finland 6s rise 1¾ point; Denmark dollar bonds 2¾ @ 6⅛, Norways ½ @ 4⅝. Wheat recovers 1¼¢ to $1.05⅛. Sterling up 3¢ to $3.94¼. Welles talks with French Premier Daladier.

Mar. 8—Sterling falls 4½¢ to $3.89½. Rumored activity of Germany and Western powers in arranging Finland peace. Denmark dollar bonds rise ½ @ 1¼; Norwegians irregular.

Mar. 9—Finland 6s rise 2¾ points to 49½, making 4½ recovery for week. Further advance of 1 @ 3¾ points in Danish dollar bonds and ½ @ 1¾ in Norwegians. Sterling declines 3¢ to $3.86½, lowest since Nov. 10. Wheat up 1½¢ to $1.04¾.

Mar. 11—Finnish negotiators discuss peace terms at Moscow. Finland 6s rise 6 @ 7 points overnight; day's total advance 15 points to 70; compared with 45 at end February, 32 in December and 107 highest 1939, before Russian invasion. Norway dollar bonds rise ½ @ 6 points, Denmark bonds 1 @ 2⅛. Sterling falls 8½¢ to $3.77½; previous 1940 highest $4 at end January.

Mar. 13—Finland dollar 6s rise 12 points from previous day's close to 80; highest since Nov. 30, 1939, before Russian invasion began. Norway bonds rise 1 @ 5 points. Denmark's rise 5 and react 2 @ 3. Wheat declines 2¼¢ to $1.01. Sterling falls 6⅜¢ to $3.70⅞; lowest since April, 1933, since when has risen to $5.18⅞ in April, 1934. Steel output unchanged at 63½ per cent, first absence of decline in 9 weeks.

Mar. 14—Finland 6s down 1 point to 79; Denmark and Norway dollar bonds range from rise of ½ to decline of 2⅛. Sterling falls 5⅜¢ to $3.71⅛.

Mar. 15—Sterling falls 1½¢ to $3.69⅝, then recovers to $3.71¼. Finland 6s down 3¾ to 75¼; Denmark and Norwegian bonds range from rise of ½ to fall of 3½.

Mar. 18—Hitler and Mussolini meet at Brenner Pass. Market greatly confused at contradictory cables regarding result of conference. Sumner Welles visits Pope at Rome.

Mar. 19—Nazi claim that pledge of Italian military support was given at Brenner conference denied. Market fractionally stronger, more active.

Mar. 20—Stocks stronger. Wheat rises 3¢ to $1.06, highest since Feb. 23. Steel output down from 63½ to 62½, lowest of year to date.

Mar. 24—Coldest Easter on Weather Bureau records; bright sunlight, but temperature 15 at N. Y., lower elsewhere in North. But this Easter Sunday was earliest in date since 1913 and, with that exception, since 1856.

Mar. 26—Sterling falls 17¢ to $3.51⅞, recovering 2¢. U. S. Steel Corp., after market's closing, declares 1% dividend on common stock; first common dividend since 1% in December, 1937, second since March, 1932, when one-half of 1% was paid.

Mar. 27—Steel output 61%, against 62½.

Mar. 28—Another million-share day, but stock market loses nearly all previous day's gain. Sterling recovers 12¢, partly on bear covering induced by State Department's intimation that it will not tolerate voluntary decline sterling, if purpose is to expand British exports.

Mar. 29—Stocks higher. Sterling declines 8¢ to $3.52.

April 3—Sharp recovery in stocks; average up 1⅛ points to highest since Nov. 20. Sales 1,725,000 shares, largest daily business since Nov. 3, 1939. Bond average up ⅜ to highest since Mar. 14, 1939. Steel output rises from 61 per cent to 61½; except for opening week January, when furnaces had closed for year-end stock-taking, first rise since November.

April 4—Average rise 1¼; transactions 1,994,000 shares, largest since Sept. 27 and third largest since Sept. 14. Partial reaction at close; bond average higher. Stock Exchange seat sold for $59,000, against

$52,000 March 27 and $48,000 Feb. 2.

April 5—Market advances, but closes little changed; 1,225,000 shares sold. Wheat up 1¢ to $1.06½.

April 6—Largest stock market Saturday since Nov. 4; 710,000 shares sold. Stock averages up ⅝, bond averages highest of year. Reichsbank rate reduced to 3½ per cent from 4, maintained since September, 1932.

April 9—Germany invades Denmark and Norway without warning; Denmark yields. Denmark dollar bonds fall 16⅝ @ 31½ points, 6 per cents going to 28; Norway dollar bonds decline 29 @ 39 points, the 6 per cents of 1944 falling to 55½. Belgian dollar bonds fall sympathetically 7½ @ 16 points, Italian 7s 4⅞, Copenhagen City bonds 18, Rome 6½s 5½. On the London Stock Exchange dealings in Danish and Norwegian bonds were suspended, practically also in Amsterdam. European markets for other securities weakened, but without panic. Transactions on N. Y. Exchange 2,135,000 shares, largest since Sept. 27, but price movement was uncertain. Stock averages rose ⅛, declined 1⅝ and recovered ¾. U. S. bonds broke ⅛ @ 1⅛ points, on trading of $952,000, against $116,000 day before and $723,000 in whole preceding week. Sterling fell 12¢ to $3.43½, lowest since April 15, 1933, but recovered to $3.46. May wheat rose 4¾¢ to $1.09, highest since Dec. 19, 1939, but reacted 1¼¢.

April 10—British fleet attacks German warships and transports in Skagerrak; German losses heavy, battle continues. London and Amsterdam stock markets slightly lower, Paris and Berlin higher. New York stock averages down ⅝, trading 1,287,000 shares. Steel output down from 61½% to 61, but Iron Age reports great irregularity in different steel centers.

April 11—News of sea fight off Norway favors England; reported eighteen German ships sunk, four British. London market closes higher, government loans up ⅛ @ ⅝ point. Paris and Amsterdam rise sharply, Berlin lower.

April 12—Light steel products cut $4 per ton. Sterling declines 6¾¢ to $3.48½.

April 13—Sterling up to $3.53¼, comparing at week-end with $3.53½ at closing on April 8, day before invasion of Scandinavia. Week's prices had moved within wide range of 16½¢.

April 14—British Government calls for delivery to Treasury on April 29 of 117 separate dollar security issues, to be held for possible liquidation. First call for 60 shares had been announced Feb. 19.

April 16—British capture Norwegian port of Narvik from Germans. Nazi army advances in South Norway. Premier Reynaud declares to French Senate that, in a week, the Nazi navy had lost 30%, including 20% of her cruisers and 25% of her destroyers.

April 17—Norwegian and Danish bonds mostly fell to lowest thus far in 1940. Steel production rises from 61% to 62.

April 18—Stocks lower, sales 1,025,000. Wheat rises to $1.12⅛. Member bank excess reserves cross $6,000,000,000; same date 1939, $4,000,000,000.

April 22—Wheat reaches new high of $1.13, but closes at $1.11⅝.

April 24—Cuts in steel prices unexpectedly restored. Steel output unchanged at 62%; but Iron Age estimates that April steel orders aggregated "10 @ 20% ahead of March."

April 25—Nazis advance in South Norway. Sterling and stock market little changed.

April 27—British retreat continues.

May 1—British shipping quits Mediterranean. Stocks closed weak; sales, 806,250 shares. Steel output up 1 point in week to 63%.

May 3—Roosevelt asks Mussolini not to join conflict. Market erratic. Sales, 1,070,750 shares; New York stock averages little changed.

Wheat off 2¢, recovering 1⅜. Sterling declines ½¢ to $3.48. Norwegian bonds lose 11¼ points.

May 6—Stocks irregularly lower; sales, 526,290 shares; lightest session in almost two months. Sharp break in sterling to lowest since March 13, 1933, closing at $3.41, a loss of 6½¢ for the day. Wheat down ⅝¢ to $1.06½.

May 7—Prime Minister Chamberlain attacked in Commons. Holland on the alert; communications and canals closed. New York stock sales, 583,850 shares. Sterling down 3¾¢ to $3.37¼, lowest since Jan. 23, 1933. Franc weak. Cotton loses 3 to 5 points.

May 8—Chamberlain upheld in Commons by vote of 281 to 200. Sterling declines 4¼¢ to $3.33, lowest since Dec. 30, 1932. Franc at new low of 1.88½, off 2¾ points. Steel output up 3½ points to 66½% for week.

May 10—Nazis invade Holland, Chamberlain resigns British premiership; replaced by Winston Churchill. Markets at London, Paris and Berlin weak. New York averages fall 2½, recover ¼; sales 2,086,000 shares. Sterling falls 35⅞¢ to $2.99⅞, lowest of year to date, but recovers 15¢. Wheat rises 4⅛¢, then declines ⅜.

May 11—German invasion resisted, but Belgian dollar bonds fall 29 to 36 points; sterling recovers to $3.30.

May 12—Sunday. News from Europe utterly confused.

May 13—Nazis advance into Holland and Belgium. Leading New York stocks fall 2 to nearly 10 points. Averages down 5⅞; sales 2,557,000 shares, largest day's decline since Nov. 19, 1937. Sterling down 14½¢ to $3.15½.

May 14—Holland surrenders. Amsterdam Stock Exchange closes. London and Paris markets weak. New York market breaks heavily, losses running from 3 to 19 points; sales 3,680,000 shares. Wheat falls 10½¢, corn 4¾, rye 10⅛. Cotton declines $3.50 per bale, but recovers $1. Sterling recovers 5¢.

May 15—Large-scale battle begins on Belgian border between Anglo-French and German armies. Germans make furious tank attack; French forces disordered. London and Paris markets decline, Berlin advances. New York stock averages decline 1½, recover 3⅞, react 1⅝; sales, 3,771,000.

May 16—President proposes to Congress defense program of $1,182,000,000. Battle on Belgian border continues violently. London and Paris markets weak, Berlin strong. New York averages down ⅝, up 2⅜; war munitions stocks notably strong; sales 2,355,000 shares. Sterling declines 2¾¢ and recovers 5⅝. Wheat, after falling 1½¢, rises 6¼.

May 17—Nazis pierce French line. British and Italian markets decline; Paris and Berlin advance. New York stock averages fall 4⅞ points and recover ⅞; sales 3,074,000 shares. Individual stocks decline 3 @ 10 points. Sterling falls 5½ cents, recovers 1½. Wheat declines 4⅞ cents to 86 cents, rallies ⅞.

May 19—Sanguinary battle on Western Front. Furious charge of German tanks, demoralizing French armies and causing confused retreat.

May 20—Sales 1,237,730; stocks up 1½; bond averages off 1¼. Wheat up 6¼ cents from Saturday's official low of 79 cents. Sterling up 6¾ cents. London and Paris markets lower but not demoralized. Berlin market irregular.

May 22—New York stock sales 2,132,000, market steadier. Sterling gains 5¼ cents. London and Paris weak, Berlin strong. Steel output 74 per cent, up 4 points.

May 23—Churchill warns of danger to England. Sweeping emergency powers granted British Ministry. London, Paris steadier. Sterling down 4½ to $3.18¾. New York sales 1,642,000 shares; averages up 1⅝, then off 1⅜. Steel output 74 per cent, against 70. Treasury's gold passes $19,000,000,000.

May 24—European markets irregular. New York sales 871,000, first time in two weeks when million-share market was not reached. Sterling up 3½, then declines 3¼.

May 27—Belgian King surrenders to Germany. New York sales 791,000 shares. Averages up 2¼, then lose ⅞. London and Paris markets dull and firmer. Berlin declines. Sterling down ½ cent to $3.19¼.

May 28—Markets influenced by news of Belgian surrender. New York averages down 4⅛, recovering 2¼, sales 1,263,000. London market uncertain, Paris and Berlin decline. Italian stock market higher. Sterling down 7¾ cents to $3.11½, recovering 6⅝.

May 29—British send fleet to Dunkerque to rescue Allied soldiers in Flanders. Steel production up 4 points to 78 per cent of capacity.

June 3—Paris bombed. N. Y. averages down ¾ point, up ¼. Sterling 1¾¢ lower at $3.19¾. Wheat loses ¾, then rises ⅞¢.

June 4—Churchill pledges war till Empire ends; says 335,000 men were rescued from Flanders; $286,720,000 gold from Allies reaches New York.

June 5—Nazis launch new drive toward Paris on 120-mile front. Reynaud re-forms Cabinet. Stock sales 668,240 shares; averages down 2¼ points, then up ⅜. Three-day delivery of Allied gold totals $500,000,000. Steel output 80½%, up 2½ points in week.

June 6—Stock Exchange transactions 427,315 shares, third dullest day of year; averages up ⅝ point. Sterling up 50¾¢ to $3.70 on rumors of British official restrictions on "free sterling."

June 7—Sterling rises 18¢, loses 53, then gains 46, closing at $3.81.

June 8—Sales 199,290 shares, dullest Saturday since July 8, 1939. Averages down ⅛ point. Sterling 6½¢ lower at $3.74½. Belgian bonds strong.

June 10—Italy declares war on Britain and France. Roosevelt in Charlottesville speech calls it "stab in back." French Government leaves Paris; French Bourse closes. N. Y. market recovers slightly, but closes lower; sales 971,440 shares; averages down 2½. Italian bonds lose 5 points to new lows for year. Sterling loses 21½¢ on Italy's announcement, closing at $3.53. Wheat erratic, closing ⅞¢ higher at 80⅞¢.

June 11—Sterling rises 32¼¢, falls 33¼¢, then recovers 24¢. Wheat up 2⅜, down 2¼, then up 2¢. Cotton up 23 points to 10.65. Foreign bonds lower.

June 12—Stock market recovers; sales 1,357,190 shares; averages up 4⅝, down 3⅜, then up 2⅝.

June 13—Germans advance on Paris on three sides, Reynaud makes "final appeal" for U. S. aid. French Government retreats from Tours to Bordeaux.

June 14—Germans occupy Paris, which has been declared an open city. London market declines on fall of Paris, but new buying is attracted; Berlin slightly lower. N. Y. market higher, due to war orders. Sales 948,310. Averages rose 2½ points, then lost 2⅝ and recovered 2. Bonds stronger, Italians up 4½.

June 16—Reynaud resigns as French Premier; is replaced by Marshal Pétain. Russia moves into Latvia and Estonia. Germans break Maginot Line.

June 17—France asks Germany for peace terms. N. Y. market recovers, then turns lower. Sales 1,208,330. Averages up ½ point, lose 2⅞ and recovers 2⅜. Sterling falls 8¢, then recovers 5¢ to $3.65. Italian bonds gain 8 to 17 points; German bonds 3 to 5¾.

June 18—Hitler and Mussolini meet at Munich to decide terms for France. Sales 718,810. N. Y. averages up 1⅞, then down 1¾, recovering ½. Sterling down 3¢ to $3.62.

June 19—Washington warns Germany and Italy that U. S. will not allow transfer of French territory in this hemisphere to European powers. Steel production up 1½ to 87% of capacity.

June 20—Colonels Knox and Stimson, Republicans, named by Roosevelt to Cabinet as Secretaries of War and Navy. Stock market narrow; sales 586,200. Averages lose ¾ point. Foreign bonds lower, French Government 7s losing 23 points to new low of 70. Sterling $3.54, off 3¾¢.

June 21—Stock market irregular in dullest trading since July 10, 1939; United States Treasury bonds strong. French Government 7s 20 points lower to 50. Sterling up 5¾¢ to $3.59¾.

June 22—France signs armistice with Germany.

June 24—Republican National Convention opens at Philadelphia. France signs armistice with Italy. London suspends dealings in franc and declares an embargo on exports to Continental France. Sterling off 3¢ to $3.70. Italian and German bonds higher.

June 25—Stock market declines; steel production up 1 point to 88%.

June 26—Republican convention adopts platform; calls for preparedness against invasion. Taft and Dewey lead candidates.

June 27—Republican convention at Philadelphia unexpectedly nominates Wendell L. Willkie as candidate for President, on 6th ballot.

June 28—Stock market opens strong, utilities leading. Turnover 1,173,100 shares. Averages up ⅞ point. Sterling down 13¼¢, closing at $3.86¾.

July 1—Trading on N. Y. Stock Exchange smallest of any full day since July 3, 1939; except for that day, smallest in 18 years. Sales 272,920 shares.

July 2—Steel production for week declined on account of holiday from 88% to 75%.

July 4—British seize or sink bulk of French fleet, to prevent handing over to Germans.

July 5—France breaks off relations with Britain. Stock Exchange trade second smallest of year; sales 282,030. Sterling 13¢ lower at $3.68½. French Government 7½s of '41 fall 30 points.

July 8—Trading on Stock Exchange 232,890 shares, smallest full day since July 13, 1922.

July 10—Stock market unchanged; trading 283,140 shares. Steel output recovered to 87½%, comparing with 88%, high of year, in week before holiday.

July 13—Saturday trading on Stock Exchange 124,030 shares; week's transactions smallest weekly total since Sept. 21, 1918.

July 17—Democratic convention at Chicago renominates Roosevelt for third term. Market dull, slightly lower. British pegged price sterling $4.02½ @ $4.03½ made effective on British exports. Free sterling closes lower at $3.77. N. Y. Steel output 87½%, unchanged.

July 18—Roosevelt accepts nomination, selecting Secretary Wallace for running mate. Convention delegates angry. Market motionless, 221,640 shares, smallest full day since June 29, 1920.

July 19—Hitler speech to Reichstag threatens England with extermination. Market down fractionally, trading only 255,000.

July 22—Day's trading in U. S. bonds $18,000, smallest on record.

July 23—July wheat at 71⅜¢, lowest since Aug. 31, 1939.

July 24—Air fighting continues over England. N. Y. stock transactions 195,200 shares, first five-hour day since Sept. 19, 1918, to fall below 200,000. Steel output 89%, highest since Dec. 20, 1939. Detroit operating 100% of capacity.

July 25—Roosevelt embargoes oil and scrap metal export, "except under special license."

July 27—Stock sales 83,200 shares; smallest Saturday market since Aug. 3, 1918.

July 29—Air battles violent between German and English planes over England.

July 31—Steel output rises to 90½%; three districts operating at full capacity.

Aug. 7—Steel output up from 90½% to 91%, highest since Dec. 13, 1939.

Aug. 8—Nazi air raids on England become intensive. Results doubtful. Second smallest five-hour day on Stock Exchange since Sept., 1918. Member bank surplus reserves down $550,000,000 from the high record of July 17.

Aug. 12—Stocks higher, but trading only 288,000 shares.

Aug. 13—Aerial warfare over England more intensive. London market firm, but New York averages decline 2¼ points; sales 641,000 shares, largest thus far in August. Weekly statement shows gold imports smallest since February, but earmarked gold reduced $102,774,739 to $1,658,476,743.

Aug. 14—London market strong on heavy destruction of German planes. Berlin lower. New York averages down ⅞ point, then up ¼; trading much smaller. Free sterling reaches $4.02¾, highest of year, comparing with $2.99½ in May and virtually at parity with British. Steel output declines from 90½% to 89½%; first decline since week of July 4.

Aug. 15—Over 1,000 Nazi planes raid Britain. New York stock market continues dull; sales 223,880 shares. Averages ¼ point higher.

Aug. 16—London suburbs bombed. British retaliate, attacking Italy and Germany. New York stock averages lose 1 point; sales 312,300. Wheat 2⅞¢ lower.

Aug. 17—Willkie, in acceptance speech at Elwood, Ind., endorses selective military service and aid to Great Britain. U. S. and Canada to join in defense plans.

Aug. 20—Churchill announces "agreement in principle," with U. S. for leasing of naval bases in British Atlantic possessions.

Aug. 21—Stock average up 1¼ points; sales, 360,310 shares. Canadian and Australian bonds 2 to 5 points higher, on conference between U. S. and Canada on mutual defense. British Government refuses to redeem Bank of England notes returned from abroad. Steel output rises from 89½% to 90½%.

Aug. 22—Stock market stronger at London and N. Y. Averages ⅞ point higher, bringing index to best level of current recovery movement. Canadian dollar bonds rise 2¾ @ 6; Danish bonds 2⅛ @ 10½; Norwegians ¾ @ 1½.

Aug. 24—Trading on Stock Exchange, 88,380 shares; smallest Saturday, except for July 27, since Aug. 3, 1918.

Aug. 26—Air fighting over England continues. N. Y. stock averages ⅛ point lower. Sales 161,740 shares, second lightest trading of year. Norwegian and Danish bonds 7 to 10 points lower.

Aug. 28—Steel output rises from 91% to 91½%.

Aug. 29—Weekly statement shows brokers' loans at low level since compilation was begun in 1918—$259,000,000, against $5,330,000,000 to $6,804,000,000 in 1929 and low of $331,000,000 in July, 1932.

Sept. 3—President Roosevelt announces as administrative act agreement with Great Britain whereby fifty over-age American destroyers will be transferred to British fleet in exchange for bases for American ocean and air force, acquired by lease in Newfoundland and seven West Indian islands.

Sept. 4—Market advances suddenly, ostensibly on Hitler's statement that duration of war had been discussed as three to five years. Stock sales 782,000, largest since June 28. Bond sales $6,153,700, largest since June 12. Week's steel output 82 per cent, against 91½ per cent; decrease due Labor Day holiday.

Sept. 5—King Carol of Rumania abdicates.

Sept. 9—Stocks lose 2 points on fierce bombing of London. Sales 591,920 shares.

Sept. 10—British bomb Berlin. Market dull, sales 363,820 shares. Averages 1 point lower.

Sept. 11—Churchill warns invasion

may be near, causing loss of day's gains on New York Exchange. Steel output 92½ per cent of capacity.

Sept. 12—Bombing continues over London and Germany. New York stock averages ⅞ point lower.

Sept. 13—Buckingham Palace and other non-military objectives bombed in London. Stock market session dullest and narrowest in month awaiting probable week-end invasion of Britain.

Sept. 14—Italy invades Egypt. Germans demand London's surrender or meet fate of Warsaw.

Sept. 16—Roosevelt signs draft law, under which all men from 21 to 35 must register for one year's military training.

Sept. 17—Steel output at new 1940 high of 93 per cent.

Sept. 23—General De Gaulle and part of British fleet attempt to seize Dakar. Stock market advanced to best levels since mid-May, in second largest trading of month. Sales 982,250 shares; stock averages gain 2 points. All grains higher; wheat advanced 1⅞ cents, corn 1¾.

Sept. 27—Japan joins German-Italian alliance. New York stock market closes weak. Averages down one point; London market firm. Japanese bonds lower.

Oct. 1—Stocks at New York at best levels since mid-May; sales 807,100 shares.

Oct. 2—Stock market extends gains. Turnover 769,900 shares; averages ½ point higher. Weekly steel output unchanged at 93%.

Oct. 3—Stocks higher at N. Y. for 5th consecutive session. Sales 784,885.

Oct. 4—Hitler and Mussolini meet again at Brenner Pass. Japan warns U. S. to recognize the "new order" indicated by German-Italian-Japanese alliance or face war. Prices eased on New York market after five days of higher prices. Sales 466,086; averages ¾ point lower. Japanese and German bonds higher.

Oct. 8—Washington advises Americans in Far East to return home. N. Y. market lower for fourth successive day. Averages lose 1⅜ points; sales 501,655 shares. Japanese and Australian bonds 2 to 4 points lower.

Oct. 9—Stock market fractionally lower; sales 445,660 shares. Japanese bonds lose 2 to 8 points. Weekly steel output 94%.

Oct. 15—Stocks recover yesterday's losses. Sales 547,400. Steel production rises to 94½%, the highest rate since June, 1929, when capacity in open hearth and Bessemer steel, according to Iron Age, was nearly 10,000,000 tons a year smaller than it is now.

Oct. 16—All men in nation between ages of 21 and 35 years register for draft.

Oct. 17—Stock market reached best levels of current movement. Sales 648,900 shares.

Oct. 18—Britain reopens Burma road.

Oct. 22—Hitler "receives" Marshal Pétain in occupied France at expiration of 4 months' armistice. Wheat at new high for current movement. Sterling declines to 2 month low; closes at $4.02¼, 1 cent lower for day. Steel production for week 95½%.

Oct. 23—Hitler and Gen. Franco meet at Hendaye on the French border.

Oct. 26—U. S. warns Vichy government that it may be necessary for us to occupy French possessions in this hemisphere because of France's cooperation with Germany.

Oct. 27—Italy invades Greece, as Athens rejects ultimatum.

Oct. 30—Stocks at best levels since early October; sales 674,070 shares. Weekly steel output 96%.

Oct. 31—Stocks 1 to 4 points higher in heaviest trading since June 12. Sales 1,343,960 shares.

Nov. 1—Trading on Stock Exchange exceeds million-share mark for second consecutive day; sales, 1,258,905 shares, with averages declining ¼ point.

Nov. 2—Trading in stocks highest for any Saturday since mid-June; sales, 466,860 shares.

Nov. 4—Sales, 1,245,280 shares.

Nov. 5—President Roosevelt reelected for third term.

Nov. 6—Stocks weakened, averages losing 2⅛ points on turnover of 1,209,320 shares. Government bonds strong. Wheat closes 1¼¢ lower. Weekly steel production unchanged for week at 96%.

Nov. 7—Security and commodity markets advance on Sec. Morgenthau's announcement of government's intention to raise debt limit to $60,000,000,000 or $65,000,000,000 and to remove tax-exempt clause from future borrowings. Stocks rise 2 to 8 points; averages 2¾ points higher.

Nov. 8—Stocks irregularly lower on profit-taking; turnover, 1,750,930 shares. Government bonds continue strong.

Nov. 9—Trading on Stock Exchange, 1,099,290 shares, highest for Saturday since May 18, averages gain a point. Government bonds at new highs.

Nov. 12—Premier Molotoff of Russia and Hitler discuss Russo-German relations for three hours in Berlin.

Nov. 13—British report attack on Italian base at Taranto, crippling half of Italian fleet.

Nov. 15—All-night air attack on industrial city of Coventry in England described by Germany as "greatest attack in the history of aerial warfare." Casualties estimated at 1,000 persons.

Nov. 16—Sales on Stock Exchange 488,640 shares, against 1,099,290 on previous Saturday; averages for week 3 points lower.

Nov. 17—Italians abandon Koritza, key point in Albania.

Nov. 20—Birmingham heavily bombed. Hungary enters Axis alliance. Greeks ask U. S. plans, comparing itself to Finland. Stock market averages 1⅝ points lower; sales, 813,760 shares. Weekly steel production 97% of capacity.

Nov. 23—Lord Lothian, on his arrival in U. S., says England is near end of its fiscal resources and will need financial aid in 1941. Rumania signs alliance with Axis. Greeks take Koritza. Trading on Stock Exchange dullest Saturday in a month; sales, 241,060.

Nov. 24—Greeks continue to drive Italians farther into Albania.

Nov. 27—Stocks lose 1 to 3 points and close at lowest level since Aug. 28. Sales, 845,300. Steel output unchanged at 97%.

Dec. 1—Kennedy resigns as envoy to London.

Dec. 4—Jesse Jones, Federal Loan Administrator, calls Britain a "good risk." Weekly steel production unchanged at 97% of capacity.

Dec. 7—Sir Frederick Phillips, Under-Secretary of British Treasury, explains British financial position to Secretary Morgenthau. Stock market averages gain ⅞ point; sales 403,877 shares.

Dec. 10—Churchill announces in House of Commons that British forces had crossed desert and reached the Mediterranean coast between Sidi Barrani and Bagbag. Britain rejects Hoover's plan for feeding inhabitants of German conquered territories. Hitler in speech to German workers says Germany will "defeat the entire world." Steel production slightly lower for week at 96.5% of capacity, mainly because of the putting out of certain open-hearth furnaces for repair.

Dec. 11—Treasury issues $500,000,000 issue of "national defense notes" bearing interest of ¾ of 1% and maturing in 5 years. Stocks rise to best levels of month; sales 813,660.

Dec. 12—Lord Lothian, British Ambassador to United States, dies suddenly in Washington. Churchill announces capture of 20,000 Italians in Egypt as "most moderate estimate." Stocks fractionally higher.

Dec. 13—Stocks continue fractionally higher in largest trading since Nov. 15; sales 961,450 shares.

Dec. 14—In broadcast to French nation Marshal Pétain announced that Pierre Laval was no longer a member of the government; Pierre Flandin to succeed M. Laval.

Dec. 16—Britain asks United States for financial aid.

Dec. 17—President Roosevelt announced that Administration was considering lending arms to Britain, but that the dollar sign should be removed from consideration of aid to Britain. Stock market continues fractionally lower, with sales at 701,960 shares. Weekly steel production 97% of capacity.

Dec. 19—Nazis reported flying Italians to Albania. Stock market steadier, but averages touched lowest point since Aug. 27.

Dec. 20—British fleet raids the Adriatic, reporting no Italian vessels or planes about. President Roosevelt names four-man commission to direct and speed up nation's defense program.

Dec. 21—Germany warns United States on ship seizures. Lord Halifax named to succeed Lord Lothian as British Ambassador to United States.

Dec. 23—Churchill broadcasts appeal to Italian people to oust Mussolini. Stock averages recover ½ point after eight consecutive declining sessions.

Dec. 25—Two-day unofficial air truce over England and Germany. One hundred and fifty thousand Nazis reported pouring into Rumania.

Dec. 29—President Roosevelt in a speech to the nation said that a program of "dynamic non-belligerance," which included all possible aid to Britain and other foreign democracies, would probably keep America out of war, though he could not guarantee that it would do so. He warned against all notions of business as usual, and called on management and labor to join in this common effort.

Dec. 31—Hitler, in year-end broadcast to German people, denies that Reich aims at world domination. Predicts German victory in 1941, "not by luck but by justice," and without naming President Roosevelt, denounces the declarations made regarding Nazi purpose in the White House broadcast of Sunday, Dec. 29.

PERIODICAL PUBLICATIONS

American Banker
32 Stone Street, New York City.

American Business Combined With System
4660 Ravenswood Ave., Chicago.

American Economic Review
Northwestern University, Evanston, Ill.

American Exporter
386 Fourth Ave., New York City.

American Import and Export Bulletin
8 Bridge Street, New York City.

American Importer
45 East 17th Street, New York City.

American Insurance Digest and Insurance Monitor
605 North Michigan Ave., Chicago.

Bankers Magazine
185 Madison Ave., New York City.

Banking
American Bankers Association, 22 East 40th Street, New York City.

Banking Law Journal
185 Madison Ave., New York City.

Barron's
44 Broad Street, New York City.

Bond Buyer
67 Pearl Street, New York City.

Business Week and The Annalist
330 West 42nd Street, New York City.

Commerce and Finance
95 Broad Street, New York City.

Commercial and Financial Chronicle
25 Spruce Street, New York City.

Credit World
1218 Olive Street, St. Louis, Mo.

Financial Age
132 Nassau Street, New York City.

Financial World
21 West Street, New York City.

Fortune
9 Rockefeller Plaza, New York City.

X. BUSINESS AND FINANCE

Harvard Business Review
330 West 42nd Street, New York City.

Insurance
671 Broad Street, Newark, N. J.

Insurance Advocate
123 William Street, New York City.

Insurance Examiner
1 La Salle Street, Chicago.

Insurance Law Journal
214 North Michigan Ave., Chicago.

Journal of American Insurance
919 North Michigan Ave., Chicago.

Journal of Business
5750 Ellis Ave., Chicago.

Journal of Commerce
505 Chestnut Street, Philadelphia.

Life Association News
11 West 42nd Street, New York City.

Magazine of Wall Street
90 Broad Street, New York City.

Nation's Business
Chamber of Commerce of the United States, Washington, D.C.

Spectator
Chestnut and 56th Street, Philadelphia.

Sphere
742 Munsey Building, Washington, D.C.

Standard
89 Broad Street, Boston.

Trusts and Estates
50 East 42nd Street, New York City.

Weekly Underwriter
80 Maiden Lane, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

ECONOMICS

American Economic Association, Northwestern University, Evanston, Ill.

American Fair Trade Council, Inc., 36 W. 44th St., New York City.

American Home Economics Assn., 620 Mills Bldg., Washington, D.C.

American Institute of Accountants, 13 E. 41st St., New York City.

American Institute of Weights and Measures, 33 Rector St., New York City.

American Petroleum Institute, 50 W. 50th St., New York City.

American Retailers', Inc., 128 W. 31st St., New York City.

American Society of Certified Public Accountants, National Press Bldg., Washington, D.C.

American Statistical Assn., 1626 K St., N.W., Washington, D.C.

Chamber of Commerce of the United States of America, 1615 H St., N.W., Washington, D.C.

Consumers' League of New York, 215 Fourth Ave., New York City.

Co-operative League of U.S.A., 167 W. 12th St., New York City.

French Chamber of Commerce of the U.S., 4 E. 52nd St., New York City.

General Society of Mechanics & Tradesmen of New York City, 18 W. 44th St., New York City.

Home Market Club, Inc., 38 Chauncey St., Boston, Mass.

Institute of Economics, 722 Jackson Pl., Washington, D.C.

International Accountants' Society, 3411 S. Michigan Ave., Chicago.

Italian Chamber of Commerce in New York, 80 Broad St., New York City.

League for Industrial Rights, 40 Wall St., New York City.

Mellon Institute of Industrial Research, University of Pittsburgh, Pittsburgh, Pa.

National Assn. of Cost Accountants, 385 Madison Ave., New York City.

National Assn. of Credit Men, 1 Park Ave., New York City.

National Assn. of Real Estate Boards, 59 E. Van Buren St., Chicago, Ill.

National Bureau of Economic Research, Inc., 1819 Broadway, New York City.

National Consumers League, 114 E. 32nd St., New York City.

National Economic League, 6 Beacon St., Boston, Mass.

National Economy League, 280 Madison Ave., New York City.

National Foreign Trade Council, Inc., 26 Beaver St., New York City.

National Research Council, 29 W. 39th St., New York City.

National Wholesale Grocers' Assn. of the U.S., 60 Hudson St., New York City.

New York Stock Exchange, 11 Wall St., New York City.

Order of United Commercial Travelers of America, 632 N. Park St., Columbus, O.

BANKING AND CURRENCY

American Bankers Assn., 22 E. 40th St., New York City.

American Institute of Banking, 22 E. 40th St., New York City.

Investment Bankers Assn. of America, 531 First National Bank Bldg., 33 S. Clark St., Chicago, Ill.

National Assn. of Mutual Savings Banks, 60 E. 42nd St., New York City.

National Assn. of Superintendents of State Banks, Nashville, Tenn.

New York Clearing House Assn., 77 Cedar St., New York City.

United States Building and Loan League, 333 N. Michigan Ave., Chicago, Ill.

INSURANCE

Actuarial Society of America, 393 Seventh Ave., New York City.

American Institute of Actuaries, 135 S. La Salle St., Chicago, Ill.

American Institute of Marine Underwriters, 99 John St., New York City.

American Marine Insurance Syndicates, 99 John St., New York City.

Association of Casualty & Surety Executives, 60 John St., New York City.

Association of Life Insurance Presidents, 165 Broadway, New York City.

Casualty Actuarial Society, 90 John St., New York City.

National Assn. of Life Underwriters, 11 W. 42nd St., New York City.

National Assn. of Mutual Casualty Cos., 60 E. 42nd St., New York City.

National Board of Fire Underwriters, 85 John St., New York City.

National Bureau of Casualty & Surety Underwriters, 60 John St., New York City.

National Council of Compensation Insurance, 45 East 17th St., New York City.

National Fire Protection Assn., 60 Batterymarch, Boston, Mass.

National Travelers Aid Assn., 425 Fourth Ave., New York City.

Surety Assn. of America, 60 John St., New York City.

Travelers' Aid Society, 144 East 44th St., New York City.

DIVISION XI

AGRICULTURE AND ALLIED INDUSTRIES

CONDITIONS IN AGRICULTURE

By Arthur P. Chew

Assistant to the Director of Information, Department of Agriculture

EFFECT OF WAR ON EXPORT TRADE

Thus far, in sharp contrast with what happened during the first World War, the current war in Europe has damaged the agricultural export trade of this country. In the first 12 months of the war exports of tobaccos, fruits, and grains were in each instance more than 30 per cent less than in the preceding 12 months. Exports of pork products were about 20 per cent below those of the preceding year and about 40 per cent below the 10-year average. Exports of raw cotton and linters, after advancing sharply for a time, started downward in January, 1940. By August they were considerably lower than in any other month of the war-year. The total for the period September, 1939 to August, 1940 was about 80 per cent above that of the preceding year; but cotton exports then were exceptionally low—only 43 per cent of the 1910-14 average. Factors that helped cotton temporarily were the depletion of reserves in foreign countries, the prevailing relatively high level of European mill activity, and our own cotton-export program. These forces by midsummer had spent themselves, and invasions had virtually closed continental Europe. In August every one of our 12 leading farm-export products, except oranges, was at a considerably lower export level than in August, 1939. All but three were at or near the lowest point reached in any month of the year.

DEFENSE PROGRAM AND AGRICULTURE POLICIES

As this country's defense program proceeds, agriculture may have to change some of its policies; otherwise agricultural and defense policy may get out of step. It is difficult to foresee all the requirements; but some of them can be indicated. For example, what the nation asks of agriculture now is different from what it asked during the World War 1. The main need then was vastly increased production for export. In the present emergency the main need is an adjustment to the different effects on the one hand of the defense program and on the other hand of the war situation. Activity in defense industries, with the stimulus it has on employment, warrants undiminished and even increased production for domestic consumption; whereas the war and the associated collapse of export trade enjoins reduced production for export.

Failure to reckon with these trends could disturb agriculture gravely. They increase the advantage that the growers of dairy products, meats, fruits, and vegetables have over the producers of wheat, cotton, and tobacco. Price disparities within agriculture can be as harmful as price disparities between farm and nonfarm prices. Clearly, some equalizing action will be needed; otherwise the divergent course of different parts of the farm price structure will weaken agriculture, and reduce the contribution it can make to the national defense. It may be necessary to work out new criteria of equitable price adjustment and new types of cooperative crop control. Present conditions make the export problem essentially a problem for the whole of agriculture, rather than merely for the branches immediately affected. Handling of it in that sense is a national duty.

Agriculture will have to think anew about making additional crop shifts. In 1939 farm goods were rather freely sent to France and England and to Scandinavia and the Low Countries, as well as to countries bordering on the Mediterranean. Germany's invasion of Norway, the collapse of the Low Countries, the closing of the Mediterranean, and the fall of France, closed the entire continental European market. Only the British market remained. This condition may last indefinitely. It sharply warns the American farmer to shift his production more nearly to a domestic basis, and he should heed the warning despite the fact that commodity loans and the ever-normal granary may soften the consequences of declining foreign trade.

Growing unneeded crops is sheer waste of labor, of capital, and of soil, even if temporarily the products can go into storage under Government loans. It is a drain on resources that would otherwise be available for the national defense. Farm programs may have to put more emphasis on shifting entire enterprises or systems of farming in certain areas or regions. Collectively and individually farmers, with suitable Federal aid, should do all they can to adjust their output to the actual available market. This is the most important contribution they can make to defense preparedness.

GRAIN AND COTTON RESERVES

Supplies of wheat and corn are now at about the levels contemplated as desirable in the Agricultural Adjustment Act. The wheat reserve is about twice and the corn reserve about three times the pre-AAA level. Supplies of some types of tobacco are in excess of the goals. This is a result partly of the fact that in 1939 the growers did not use marketing quotas and partly of the war. Supplies of cotton also are excessive, mainly because the war cuts off most of the foreign market. The National Farm Program affords considerable protection against the excessive accumulation of supplies, in that it enables farmers to store productivity as well as products. It helps them to keep soil fertility in the soil when the immediate transformation of it into crops is not desirable.

Participation in the AAA programs was higher this year (1940) than previously. Preliminary reports indicated that 6,000,000 farmers cooperated, as compared with 5,750,000 in 1939. The participation in 1939 was the highest up to that time. That year was the first in which the Agricultural Adjustment Act of 1938 was completely effective. Though passed in 1938, the enactment came too late to be fully operative in that year for all groups of producers. Notably it came too late for the winter wheat growers. Moreover, the Wheat Loan Program encountered delays in 1938, so that it was not as effective as it became later. The increased farmer-participation reflects definite advantages that participation offers.

CROP AND STOCK PRODUCTION

The year 1940 was one of abundant crop production. Output of both food grains and feed grains was above average. Wheat production was above that of 1939 and above the 10-year average. The production of feed grains was sufficient to provide about the usual quantity per head of livestock without drawing on accumulated reserves. The tonnage of hay and forage saved reached record proportions. Hay production was in excess of the quantity that will be fed during the winter.

Cotton yielded more than half a bale per acre for the second time on record, and total production, despite the relatively small acreage, was only six per cent below the 10-year (1929-38) average. Tobacco production, though below that of 1939 and below average, will be ample with the stocks from the previous year's record large crop. The legumes—beans, soybeans, and peanuts—set a new high total production.

The expansion of livestock numbers that started in 1938 continued in 1939 at a faster rate. At the beginning of 1940 the numbers of cattle, milk cows, hogs, and sheep on farms were much larger than a year earlier. But the number of horses and mules continued to decline. The number of hogs and hens was lower by the end of the year.

COTTON EXPORT TRADE

Critical conditions affected cotton. The loss of continental European markets counteracted some developments that otherwise would have improved the situation, particularly with respect to American cotton. After June 1940 our cotton exports declined. For the 1940-41 season they may total only between 1,000,000 and 2,000,000 bales. Even the larger figure would constitute the smallest cotton exports since the Civil War period.

The shock of the decline in the export markets for cotton is being cushioned by Government loans. With limited stocks of non-loan cotton from previous crops carried over in commercial channels, domestic prices are being supported at about the 1940 loan rates. These rates, which for middling 15/16″ range from 8.76 to 9.5 cents on a gross weight basis, are from 0.21 to 0.35 cents higher than the 1939 loan rates. With the higher loan rates, slightly smaller total supplies, and a prospective larger domestic consumption, domestic prices during the first three months of the current season averaged a little higher than during the corresponding period last season.

Though these unfavorable factors are not being reflected in farm income at present, there is almost certain to be an unhealthy increase in the government loan stocks during 1940-41. At the end of the 1939-40 season, the Commodity Credit Corporation owned or held collateral against loans on nearly 8,750,000 bales of cotton from earlier crops. This figure will likely be increased as much in 1940-41 as it was reduced in 1939-40. Total stocks of American cotton on hand at the end of the current season will also probably increase materially despite the expected record domestic consumption. Foreign cotton production is somewhat larger than during the previous two seasons, and much larger than the average. This increase, with the shrinkage in the world consumption, will probably mean an increase also in world stocks of foreign cottons next August. They may exceed the previous peak of 8,900,000 bales reached on Aug. 1, 1938.

The long-time as well as the immediate outlook for cotton exports is gloomy. Besides temporarily closing the important markets of continental Europe, the war has given the British possessions and sterling-bloc countries an additional incentive to grow cotton. Conditions in recent years have fostered further important developments in synthetic fiber production, especially in the totalitarian countries. Such facts, along with the uncertainties as to the war's duration and outcome, make American cotton more dependent upon the domestic market. These developments and the course of international trade in the post-war years may enhance that dependence for some time. As an alternative to further drastic reduction in our cotton output, efforts to expand cotton consumption in the United States have great importance. To the degree that these efforts succeed, the cotton adjustment problem will be less difficult.

WHEAT EXPORT TRADE

From early times this country has generally produced more wheat than it can itself consume. Adjustments in recent years under the Agricultural Adjustment Acts of 1933 and 1938 have reduced the surplus. Nevertheless there are still substantial quantities for export.

This country cannot export wheat

freely under present world conditions. Continuation of export subsidies may assure some wheat export trade; but the amount will be small unless the importing nations reduce their acreage and depend more on supplies from overseas.

In any event, the purchasing power of wheat importing countries will probably be low for many years, and increased takings of wheat by these countries can readily be supplied by other exporters. There is small prospect, therefore, that we shall be able to export wheat at anything like parity.

World prices have been low. They are expected to continue low. If the wheat producers of the United States had been compelled to accept the prices obtainable abroad, they would have received less than 50 cents per bushel net for the 1939 crop. Actually, they received 71 cents. The differential was the result largely of United States Government loans, export subsidies, and acreage allotments. Yet the 71 cents average was still far below the parity price, the objective under the Agricultural Adjustment Act. The parity price for the 1939 crop was $1.13. Crop shortages or an increased demand for wheat advantageously located may cause prices in some importing countries to rise for short periods while the war continues. But the world prices that prevailed during 1939-40 are more likely to prevail generally in the immediate future.

Government financing of wheat exports, one cause of the favorable differential between the world price and the domestic price, has been done by funds from tariff revenues. During the marketing year, July 1, 1938 to June 30, 1939, it effected export sales of 93,000,000 bushels of wheat and flour in terms of wheat at a total cost of $26,000,000. This represented an average cost to the government of about 28 cents per bushel. During the marketing year July 1, 1939 to June 30, 1940, export sales of 35,000,000 bushels were financed at a total cost of $10,500,000 which represented an average cost of about 30 cents per bushel. Sales under the export program in 1939-40 were reduced because of the war.

Our wheat carry-over on July 1, 1940, was 284,000,000 bushels, enough to provide about 175,000,000 bushels as a reserve above minimum normal trade carry-over needs. This reserve is only slightly above the carry-over objective of the ever normal granary program. But should the yields be large in 1941 supplies will be excessive and the need for export subsidies will be increased. Otherwise domestic prices will be likely to decline seriously. The need for loans to producers who have kept within their allotments will be intensified also since the export subsidy cannot be expected to get the entire surplus out of the way. These loans would of course be like those now made under the Agricultural Adjustment Act of 1938.

TOBACCO AND TOBACCO PRODUCTS

Tobacco growers, particularly the producers of the export types, faced a difficult situation in 1940. Two principal factors brought it about: (1) the burden of record stocks caused by the large crop of 1939; and (2) the decrease of exports to Europe because of war.

Domestic consumption of products in which the United States tobacco is used is at a record level; it increased around three per cent during 1940. Cigarette consumption, which represents a little more than half of the total, was chiefly responsible for this gain. Chewing tobacco showed a decline, in line with the trend of many years.

Flue-cured tobacco, which represents about half of the United States leaf production, suffered from the excess carry-over resulting from a record 1939 crop and the current curtailment of exports. Burley tobacco was handicapped by the existence of surplus stocks, but production was below disappearance for the first time in four years. Fire-cured and dark air-cured tobacco were affected chiefly by the loss of export outlets. In cigar leaf types and Maryland tobacco there was a better balance between supply and demand, although the closing of continental European markets was a blow to the latter type.

In September 1939 growers of flue-cured tobacco, in a referendum, adopted marketing quotas for 1940. The growers' action followed the suspension of British buying and closing of markets during the selling season. This action enabled the government to take price-supporting measures as a partial offset to the sudden loss of exports. The Commodity Credit Corporation financed purchases of grades of tobacco that commonly move in export channels, and helped maintain prices for the 1939 selling season at an average of 14.9 cents a pound.

It became evident in 1940 that the exports of fire-cured tobacco also would be sharply reduced. In recent years, the export market has taken about 60 per cent of our fire-cured tobacco. Other dark tobacco types, though not to the same extent, suffered a loss in export demand.

In the case of Burley tobacco, the 1939 crop greatly exceeded market outlets, and because of the resultant large supplies, growers adopted a marketing quota for 1940. The 1939 crop was the third consecutive one which had exceeded the annual consumption. In 1940, the Burley crop was slightly below expected disappearance. However, because of the large carry-over from previous years, total supplies of Burley were not markedly smaller than they were the year before. An added factor is that the war may cut off the market for about 5,000,000 pounds of Burley in the future.

With uncertainty as to what will happen to export markets during and after the war, the Agricultural Adjustment Act is becoming increasingly important as an aid to adjusting tobacco production to changing conditions.

LIVESTOCK AND FEED GRAINS

For the country as a whole, the livestock and feed situation will be better in 1941 than it was in 1940. Hog marketings will be materially smaller, and this will reduce the total volume of meat produced. Expected improvement in consumer demand and national income, combined with a decrease in hog marketing, should result in a higher level of prices for livestock, probably more pronounced for hogs than for other kinds.

Total supplies of feed grains (corn, oats, barley, and grain sorghums) for the 1940-41 feeding season were about 120,000,000 tons compared with 118,000,000 tons in 1939-40. The number of grain consuming livestock on farms, however, was about three or four per cent smaller than in 1939. Hence the supply of feed grains per head of livestock was somewhat larger than the previous year and considerably above the average of the five years before the 1934 drought. Excluding the corn under loan or held by Government at the beginning of the season, the supply of feed grains per livestock unit for 1940-41 is slightly less than in 1939-40.

FRUIT

Fruit crops probably could have been marketed with little difficulty had the export demand been normal; domestic consumer purchasing power was higher than in the previous season but the export situation was bad. In the 1939 season some fresh fruits and considerable quantities of dried and canned fruits were exported before the imposition of severe war restrictions. For example, embargoes on imports on fresh apples and pears into the warring countries did not become effective until about November. Embargoes on dried and canned fruits did not become effective until 1940. This season restrictions were effective almost from the beginning. They caused a reduction in canning and drying operations, and shifted a larger proportion of the fruit crops into fresh consumption.

In normal times the United States

exports 11 per cent of its fruit crop, fresh, dried, or canned. Under present conditions, with the export outlet curtailed, the supply available makes a difficult surplus problem, particularly in some important dried fruits such as prunes, raisins, apples and pears, in some canned fruits such as peaches, pears, fruit salad and cocktail, and in grapefruit. However, the crop of apricots this season is very short. Hence the supply of canned and dried apricots for domestic requirements is about normal.

Assuming no improvement in the export prospect, the long-time outlook for fruits is not bright. Producers will probably have continuing surpluses, the result of gradually expanding production. Rising domestic consumer purchasing power may offset the tendency to some extent. But the period just ahead seems to be unfavorable. It will necessitate steady effort to lower the costs of production and marketing. Considerable reductions can be made in the costs of marketing some fruits. Lower cost containers and motor-truck transportation may still further widen citrus distribution and increase the returns to producers. But fruit producers generally face a difficult problem. They need an increased consumption of fruit in this country at prices not much lower than those received in recent years. Solution of the problem may require some revolutionary changes in production and marketing.

DAIRY PRODUCTS

The dairy industry has come through the year 1940 in somewhat improved condition, having had fairly good pastures and feed crops over most of the country and a slightly better income than in the previous two seasons. The farm income from sale of dairy products in 1940 will be about $1,500,000,000, which brings it back to the level of three years ago, after an intervening slump.

Dairymen have partially offset lower prices the last two or three years by producing somewhat more milk. After the slump due to the droughts, total milk production had come back up to about 103,000,000,000 pounds by 1937. It has increased by a small percentage each year since. The output in 1939, some 110,000,000,000 pounds, was about 15 per cent larger than the average during the pre-drought years 1924-29.

Despite a gradual upward trend in production the dairy industry has been much more stable in its output than is the case in many other lines of production. Over the last 16 years the production of milk per capita of the population has not varied more than six per cent, notwithstanding that this period included probably the worst of all depressions in consuming centers as well as two of the worst drought and short feed years in the country's history.

Probably the war has aided dairymen so far more than it has harmed them. The stimulation to industrial employment and payrolls has provided a somewhat better domestic market for milk products. The war also has had some effect in stimulating exports of manufactured dairy products and this at a time when that trade has slumped. Such exports are ordinarily very low. In 1939 exports of manufactured dairy products amounted to less than 0.3 per cent of the total domestic output. It may be recalled that the first World War gave a similar stimulus to our export of concentrated milk.

SUGAR INDUSTRY

During 1940, the sixth year since sugar programs were first inaugurated, the income of the domestic sugar industry was again maintained at approximate parity levels. The quoted wholesale price of refined cane sugar, seaboard basis (net, including excise tax on sugar) averaged $4.61 per 100 pounds for the 12 months ended Aug. 31, 1940, as compared with $4.40 for the year preceding and $4.59 for the first 12 months of the operation of the Sugar Act of 1937. Although the excise tax of 50 cents per hundredweight included in the price of sugar is paid into the Federal Treasury, conditional payments at the basic rate of 60 cents per hundredweight are made to producers out of the Treasury.

The sugar program provides not only for acreage adjustment and soil conservation, but also for a division of the market among the various areas that supply it. It provides also for some regulation of the distribution of income among the various factors in the industry including labor, as well as for the protection of our export trade. Critical world developments give special significance to the sugar program at this time. Despite the dissatisfaction of some groups with certain features of the Sugar Act and its administration, the consensus appears to be that this experiment in the regulation of it is the only practical solution of the problems of the sugar industry.

FOOD AND COTTON STAMP PROGRAMS

The Food Stamp Plan has been expanded materially since it was started in Rochester, New York, in May 1939. During the early part of the 1939-40 fiscal year it operated in a half dozen cities and later was extended until by the end of the year over 100 areas had been named for the plan. In the 1940-41 year it is hoped to have the Food Stamp Plan in effect in 200 areas and serving about 5,000,000 persons. If it were possible to extend the plan nationally, 20,000,000 persons could participate.

Extension of the Food Stamp Plan to serve the 5,000,000 persons will provide farmers with an expanded outlet for their surpluses, increase the flow of these commodities through regular trade channels, and give these needy consumers a more adequate diet. Experience so far indicates that this extension of the Food Stamp Plan will absorb at least 60,000,000 pounds of butter, 60,000,000 dozen eggs, 200,000,000 pounds of pork products, and trainloads of fruits, vegetables, and other products.

Just as the Food Stamp Plan gives low-income families an opportunity to eat the surplus, the newer Cotton Stamp Plan gives them a chance to wear and otherwise use the surplus. The Cotton Stamp Plan was started in Memphis, Tenn. in May 1940, and was later extended to a few additional areas for testing. Further extension of the plan must of necessity be gradual in order to make sure that it will really work in moving surplus cotton into the hands of those people who need and can use more cotton.

WHEAT CROP INSURANCE

In 1940 growers in 1,431 counties of 33 states completed 379,000 contracts for "all-risk" wheat crop insurance. They paid 14,171,979 bushels of wheat or the cash equivalent for protection on 11,986,131 acres. The guaranteed production for all insured growers amounted to 107,667,020 bushels. The Corporation's wheat reserve was stored at 139 points in 14 states under a standard storage agreement with rates at one-thirtieth of a cent a day for the first six months of each year followed by six months' free storage. As of Sept. 5, 1940, claims for crop loss had been paid under 64,074 contracts for indemnities totaling 14,261,994 bushels.

The insured yield and the premium payment rate vary from farm to farm. They are determined either from data on production and loss over a period of years or by appraisal in the absence of crop experience data. Wheat growers have the option of insuring their crop for either 50 per cent or 75 per cent of the average yield. An insured grower who suffers a complete crop loss receives indemnity up to the full amount of his insurance. If he suffers a partial loss, he receives indemnity equal to the difference between what he harvests and the amount for which he is insured. Although losses are figured in bushels, the Corporation may pay them either in wheat or in the cash equivalent.

ECONOMIC COLLABORATION WITH LATIN AMERICA

It is urgently necessary to study our growing collaboration with Latin America. In blocking South America as well as North America from the European market, the war makes the farm surplus problem a hemisphere problem. Every proposed solution involves important effects for United States farms. It has been suggested, because inter-American cooperation in defense is needed, that our market should be shared with the other American republics, and should open our doors, for example, to Argentine grain and meat, and to Brazilian cotton. This is unrealistic. Foreign trade thrives mainly on the exchange of dissimilar goods and services. In large part our surpluses are similar to those that some of the Latin American countries have. If the dilemma is to be solved effectively with benefit both to the United States and to Latin America, it must be by some better method than carrying coals to Newcastle.

There are two workable means of economic collaboration between the United States and Latin America, both of them of agricultural importance. First is the development in the Latin American countries of agricultural enterprises such as rubber growing that will be complementary rather than competitive with our own. Secondly, there is the industrialization of Latin America. More industry in South America will mean a larger market there for South American farm products. Also, if we assist in the development, it will mean a larger market here for our own farm products because the assistance given to South America's industrialization will stimulate industries in the United States and give us more employment and more domestic buying power. True, the initiative cannot be with our farmers; but farmers should nevertheless press the matter. Otherwise they may wake up one day to find other groups active to agriculture's disadvantage.

DEFENSE ADJUSTMENTS

In attending to defense the regional problems of agriculture, such as the plight of the Cotton South and of the Great Plains, should not be forgotten. In these areas farm enterprises and systems should be modified. They do not fit the needs of the market, of the soil, or of the rural population. Farm maladjustment brings social maladjustment. Failure to check this drain on our human and material resources can be costly. Nothing in the defense program will check it automatically. Aimless rural migration, wholesale loss of economic status among rural people, soil mining, and misdirected farming will not cease merely because the defense program speeds employment. In defense we should include the protection of the soil, of living standards, and of rural stability; otherwise perils will threaten us on the home front. Moreover, rootless farm people, with no security, can contribute little to the national defense. These matters cannot wait until the defense emergency is over; they are a part of the defense problem.

The defense program involves land-purchase and land-use activities. Farmers can influence the related policies. They can draw attention, for example, to the impact on farm tenure, on local cropping systems, and on rural employment. Ultimately the acquisition of land for military purposes and for defense production may involve a considerable farm acreage, and may disturb many farm tenants. Rural problems as well as benefits will result. There are problems connected with the location of defense industries. In some areas defense industries will provide needed part-time work for rural people and also a market for local farm produce. But farmers should look to the future; they do not want the passing of the defense emergency to leave ghost towns. Needless "resettlement" problems should be obviated both in the early stages and at the conclusion of the defense program. This requires a coordination of military with agricultural land-use planning.

XI. AGRICULTURE AND ALLIED INDUSTRIES

COTTON AND GRAIN CROPS

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COTTON PRODUCTION

Cotton production in 1940, as in the preceding two years, was notable for the high yields per acre and the relatively small acreage. The 1940 cotton crop of 12,686,000 bales of 500 pounds gross weight was 7 per cent larger than the 1939 crop of 11,817,000 bales. It was, however, 6 per cent smaller than the average[1] crop of 13,547,000 bales. Continuation of relatively low prices for cotton at planting time and continued reduced allotments under the Agricultural Conservation Program combined to hold the acreage near to the lowest in the century. Generally favorable growing conditions, following an inauspicious planting and starting season, finally resulted in a yield per acre second only to the record yield of 1937. Only in Florida, Alabama, and Louisiana were yields in 1940 below average.

The 1940 cotton-producing season was unfavorable at the start in that wet weather interfered with planting. Early reports concerning weevil presence and activity indicated a light prospective loss, particularly in the Carolinas, Mississippi, and Oklahoma. During August, influences affecting the progress of the crop were unusually favorable and the changing condition between Aug. 1 and Sept. 1 was greater than during any previous August. Improvement was general over the Belt.

During September, prospects improved in the southeastern states from North Carolina to Florida where below average rainfall and clear sunshiny days were favorable for maturing and picking the crop. In Alabama, Mississippi, and Louisiana, the dry period was somewhat too extended and caused considerable shedding. In Arkansas, the dry weather hastened maturity. There was some improvement in Oklahoma, but in Texas deficient precipitation, particularly in the northwest, caused excessive shedding of forms and small bolls.

During October, moderate precipitation and sunshiny weather were favorable for maturing the late bolls, particularly in the Carolinas and to a lesser extent in Missouri, Arkansas, and Oklahoma. Continued dry weather in Georgia, Alabama, and Mississippi, however, prevented the late bolls from reaching full size. In Texas, developments during the month were about average.

During November, the development of late bolls was seriously retarded by rain and freezing in the area from Georgia to Texas. Because of the lateness of the crop, prospects declined somewhat during that month. By Dec. 1, a smaller percentage of the crop was ginned than in any year since 1926. The portion remaining for harvest was relatively high in the Mississippi Delta states and in Oklahoma. Data on acreage, yield, and production are shown in the table on page 477.

Texas, as usual, ranked first in the production of cotton, followed in order by Arkansas, Mississippi, and Georgia. South Carolina, surpassing the 1939 record yield per acre, ranked fifth. A greatly increased production in comparison with average is shown in Missouri, South Carolina, Arkansas, and California, while material decreases are shown in Alabama, Mississippi, and Louisiana.

COTTON YIELDS

The yield per acre of 252.4 pounds for the United States for 1940 was second only to the record 1937 yield of 269.9 pounds per harvested acre.

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[1] Average acreage, yield, and production, when mentioned, relate to the 10 years, 1929-1938, inclusive.

COTTON ACREAGE AND PRODUCTION

State	Acreage in Cultivation on July 1 1000 Acres			Yield Per Harvested Acre Pounds			Production 1000 bales (500 lb. gross wt.)		
	1929–38 Average	1939	1940	1929–38 Average	1939	1940	1929–38 Average	1939	1940
Missouri	399	380	410	337	555	448	270	437	380
Virginia	67	33	31	269	191	385	37	13	25
N. Carolina	1,179	754	844	278	296	425	658	457	740
S. Carolina	1,630	1,248	1,276	251	342	374	820	871	970
Georgia	2,696	1,989	1,992	218	227	251	1,175	915	1,020
Florida	112	74	69	151	75	145	34	11	20
Tennessee	950	733	748	250	305	335	472	449	515
Alabama	2,821	2,100	2,057	215	186	191	1,200	785	790
Mississippi	3,433	2,662	2,691	239	299	241	1,619	1,582	1,280
Arkansas	2,922	2,187	2,207	224	319	350	1,283	1,413	1,540
Louisiana	1,584	1,154	1,196	225	319	194	709	745	455
Oklahoma	3,096	1,855	1,920	135	141	209	812	526	805
Texas	13,412	8,874	8,924	149	160	185	3,876	2,846	3,285
New Mexico	120	96	108	420	523	561	99	102	123
Arizona	190	189	222	382	514	422	154	202	195
California	293	334	356	513	648	723	315	443	525
Ill. Ky. Kan.	24	21	22	297	470	391	15	20	18
United States	34,929	24,683	25,073	198.1	237.9	252.4	13,547	11,817	12,686

The average yield per acre is 198.1 pounds. The high yield per acre resulted in part from the favorable season in most states and in part from the use of better lands, increased fertilization, and more intensive cultivation which have accompanied the greatly reduced acreages of recent years. The yield per acre was exceptionally high in the Carolinas, Tennessee, Missouri, Arkansas, Oklahoma, Texas, and California. In comparison with average, yields were low only in Alabama and Louisiana.

COTTON ACREAGE

The acreage of cotton in cultivation on July 1 of 25,073,000 acres was 1.6 per cent more than in 1939 and almost the same as the 1938 acreage. The 1940 acreage, however, was 28.2 per cent less than average. The change in plantings from 1939 was small in most of the important cotton-producing states. A notable exception was in North Carolina where an increase of 12 per cent took place as a result of the shift from tobacco to cotton, which offset the shift from cotton to tobacco in 1939. Abandonment of acreage in 1940 was greater than average. Abandonment due to natural causes was relatively small, but an acreage somewhat greater than in 1939 was removed by farmers, in order to comply with the Agricultural Conservation Program. In all, approximately 1,000,000 acres, equivalent to 4 per cent of the planted acreage, were abandoned.

Acreage harvested in 1940 was 24,078,000 acres, approximately 1.1 per cent more than the 23,805,000 acres harvested in 1939. The average harvested acreage is 33,166,000 acres. Included in the state totals shown in the foregoing table were 37,000 bales of American Egyptian cotton produced on 68,600 acres, mostly in Arizona, and 4,100 bales of Sea Island cotton produced on 30,900 acres, mostly in Georgia and Florida. In 1939, production of American Egyptian cotton was 28,000 bales on 41,000 acres, while production of Sea Island cotton amounted to 1,700 bales on 19,500 acres.

VALUE OF COTTON PRODUCTION

The total value of lint and seed from the 1940 cotton crop, based on production and prices paid to producers up to Dec. 1 was $716,952,000, compared with $648,512,000 for the 1939 crop. The 1939 prices represent local prices as of the 15th of each month from August to July, weighted by the quantity sold each month. The values stated do not include Agricultural Conservation Program payments. Of the 1940 value, $595,720,000 relates to the lint and $121,232,000 relates to the seed. Although practically all the lint is sold, a portion of the cottonseed is retained on the farms for seed, feed, and fertilizer. The average price to Dec. 1 of cotton lint for the 1940 crop was 9.40 cents per pound, compared with the season-average price of 9.09 cents per pound for the 1939 crop. The price per ton of cottonseed in 1940 (to Dec. 1) was $21.48, as compared with the season-average price of $21.21 for the 1939 crop.

GRAIN CROPS

Grain production in 1940 was featured by above average grain crops, except for buckwheat. The larger than average production was due primarily to increased yields per acre, although the acreages of barley, rice, flaxseed, and grain sorghums were also above average. The total production of grain crops used primarily for human food—wheat, rye, buckwheat, and rice—was 916,403,000 bushels, which is about 8 per cent above the production of 849,875,000 bushels in 1939 and the 10-year average of 844,651,000 bushels.

WHEAT

The 1940 wheat crop of 816,698,000 bushels was 9 per cent larger than the 1939 crop of 751,435,000 bushels. The 1940 production exceeded by 8 per cent the average of 754,685,000 bushels, although the harvested acreage was 6 per cent below average. The 1940 crop was more than enough to meet the average of about 685,000,000 bushels utilized in recent years for domestic consumption. A considerable increase in the carryover of wheat will result. The harvested acreage of 53,503,000 acres was not much different from the 53,482,000 acres harvested in 1939, but it was 6 per cent less than the average of 56,869,000 acres. The total acreage of wheat sown, including some duplication of spring wheat sown on abandoned winter wheat acreage, was 62,367,000 acres, about 2 per cent less than the 63,516,000 acres seeded for the 1939 harvest, and about 11 per cent less than the average seeded acreage of 70,152,000 acres.

Seedings of winter wheat were drastically curtailed in some states because of adverse weather for planting. This reduction in seedings was partly made up by increased seedings of spring wheat under the encouragement of an increase in the Agricultural Conservation Program allotments and of plentiful moisture to allow completion of intended spring wheat seedings.

Although only 70 to 85 per cent of the wheat crop is sold off farms, the valuation of production at the sale price gives a measure of the importance of this crop to the agricultural industry. Computed at the season-average price to Dec. 1 of 67.0 cents, the value of the 1940 wheat crop would be $547,084,000. The season-average price to Dec. 1 includes allowance for loan wheat at average loan values. The 1939 crop at the season-average price of 69.1 cents per bushel was valued at $519,575,000.

WINTER WHEAT

Winter wheat for harvest in 1940, even though A.A.A. acreage allotments were increased, was sown on a smaller acreage than for harvest in 1939 because of lack of sufficient moisture in a number of areas, notably in the Great Plains states and in Washington. There was also a general decrease in acreage in the Corn Belt states compared with seedings for 1939. In all, 43,820,000 acres were seeded in comparison with 46,464,000 acres in the preceding fall. The seedings for harvest in 1940 were about 8 per cent below the 10-year average of 47,807,000 acres. Fall seedings were delayed and to some extent suspended because of the acute shortage of moisture in much of the Great Plains area. In addition, a considerable portion of the acreage in this area was seeded in the dust, and growth did not start until spring. In parts of the area some winter wheat was seeded in April.

The wheat went into the winter with the poorest condition of record, and conditions had not greatly improved by the opening of spring. Growing conditions during the spring months, however, were generally very favorable for small grain crops and the winter wheat crop improved markedly each month as the season progressed. This was particularly true in the Great Plains area where timely rains and generally cool weather until harvest brought about such a recovery that the 1940 wheat crop has often been referred to as the "miracle crop."

Early indications were for a very heavy abandonment, but for the country as a whole the final out-turn showed only an average acreage loss. The abandonment of winter wheat in 1940 was about 17.5 per cent, compared with 18 per cent in 1939. The abandonment in 1940 included some acreage diverted to uses other than for grain. The proportion of the acreage abandoned, however, as a result of farmers' adjustments of their seeded acreage to the acreage allotments under the Agricultural Conservation Program, was somewhat smaller than that in either of the two previous years. The yield in 1940 of 16.3 bushels per acre was well above the 1939 yield of 15 bushels and the 10-year average of 14.3 bushels per acre. The production of 589,151,000 bushels was only about 3 per cent larger than the 1939 crop of 569,741,000 bushels. The 10-year average winter wheat production is 571,067,000 bushels.

SPRING WHEAT

Production of spring wheat in 1940 of 227,547,000 bushels was materially larger than the 1939 crop of 181,964,000 bushels. The 10-year average production of all spring wheat is 183,619,000 bushels. The acreage of spring wheat seeded for harvest in 1940 of 18,547,000 acres was about 9 per cent larger than the seedlings in 1939 of 17,052,000 acres. The increased seedings were due, in part, to the increase in acreage allotments under the Agricultural Conservation Program and, in part, to the generally favorable moisture conditions in the spring wheat area which allowed full completion of seeding intentions. The seedings of the 1940 crop, however, were about 17 per cent less than the 10-year average seedings of 22,345,000 acres.

The spring wheat crop was seeded relatively late in much of the midwest area. Favorable moisture conditions, however, gave the crop a good start, and cool weather aided in ensuring good root growth. A period of dry weather and excessive heat in late June and early July caused some short straw and some blighting of heads in the Northern Plains area. Good rains in late July and favorable filling weather in August more than offset the earlier damage, however, and above average yields were harvested over most of the Northern Plains area. Some damage also was caused by grasshoppers. The crop was below average in the Pacific Northwest states, largely as a result of heat and drought during June and July. With a large proportion of the acreage seeded to Thatcher and other rust-resistant varieties, very little damage from stem rust was reported in 1940.

The production of durum wheat in the three states for which separate estimates are made—Minnesota, North Dakota, and South Dakota—was 34,776,000 bushels, 17 per cent above the 10-year average production of 29,619,000 bushels. The acreage sown to durum wheat in 1940 was 3,431,000 acres in comparison with 3,211,000 acres in 1939 and the average of 3,671,000 acres. About 9 per cent of the acreage was abandoned in 1940, which acreage was somewhat larger than the acreage lost in 1939. Allowing for this abandonment, 3,121,000 acres were harvested in comparison with 3,058,000 acres in 1939 and the 10-year average of 3,035,000 acres.

The 1940 production of spring wheat other than durum was 192,771,000 bushels. This production was 31 per cent larger than the 1939 production of 147,430,000 bushels, and about 25 per cent larger than the 10-year average production of 154,000,000 bushels. Seedings in 1940 were 15,116,000 acres in comparison with 13,841,000 acres in 1939 and the average of 18,674,000 acres. Losses of acreage from seeding time to harvest were much lighter than in 1939 and 14,235,000 acres were harvested in comparison with 12,346,000 acres for 1939 and the 10-year average of 14,381,000.

RYE

The 1940 production of rye of 40,601,000 bushels is 4 per cent larger than the 1939 crop of 39,049,000 bushels and 7 per cent larger than average. The acreage seeded to rye for all purposes in the fall of 1939 was 5,536,000 acres, which was a material reduction from the 7,193,000 acres seeded in the fall of 1938 and was about 8 per cent below average. Much of the rye sown is intended for use as pasture and cover crops. Seedings in 1939 were greatly reduced by poor soil conditions and by a shift back to wheat from greatly expanded rye seedings in the fall of 1938, which were the result of reduced wheat acreage allotments.

Rye seedings entered the winter in very poor condition, but temperature and moisture conditions during the spring and early summer months were very favorable in most states, so that the crop recovered from the poor start and finally made good yields. In most states rye matured before the severe heat wave which occurred shortly after mid-July. The acreage of rye harvested for grain in 1940 was 3,192,000 acres, 17 per cent smaller than the acreage of 3,832,000 acres harvested in 1939 and 2 per cent below the 10-year average of 3,250,000 acres. The yield per acre of 12.7 bushels was much higher than the 1939 yield of 10.2 bushels and well above the average of 11.4 bushels.

The preliminary season-average price of 40.6 cents per bushel applied to the production gives a value of $16,498,000, in comparison with the value of production of $17,163,000 in 1939 when the season-average price was 44 cents per bushel.

BUCKWHEAT

Production of buckwheat in the United States is on a relatively low level in comparison with earlier years. The 1940 crop of 6,350,000 bushels was 12 per cent larger than the 1939 crop of 5,669,000 bushels, but was 17 per cent less than the average of 7,617,000 bushels. There was a slight increase in acreage from 374,000 acres in 1939 to 393,000 acres in 1940. The average acreage is 485,000 acres. At the preliminary price of 54.3 cents per bushel, the buckwheat crop had a value of $3,447,000 which is not greatly different from the 1939 value of $3,561,000 at a season-average price of 62.8 cents per bushel.

RICE

The 1940 rice crop of 52,754,000 bushels was 2 per cent less than the 53,722,000 bushels produced in 1939 and nearly 20 per cent above the average crop of 44,254,000 bushels. There was a fairly large crop in spite of a comparatively adverse season in Louisiana and in part of Texas where the crop suffered from a severe storm in August. Yield per harvested acre was 50.2 bushels, compared with 51.7 bushels in 1939 and the average of 47.9 bushels. The acreage of rice was 1,051,000 acres, slightly more than the 1,040,000 acres harvested in 1939 and considerably higher than the 924,000-acre average. At the preliminary season-average price of 70.2 cents per bushel, the value of production was $37,052,000. The season average price in 1939 was 72.8 cents per bushel and the value was $39,095,000.

FEED GRAINS

Combined production in 1940 of the four feed grains—corn, oats, barley, and grain sorghums (expressed in tons to allow for different weights per bushel)—totaled 99,168,000 tons, about 2 per cent larger than the 96,760,000 tons produced in 1939. The average production of 88,500,000 tons is for a 10-year period which includes the two severe drought years of 1934 and 1936. The pre-drought (1923-32) average production was about 101,000,000 tons. Although the corn crop was smaller than in 1939, the other three feed grain crops were each materially larger than the 1939 production. The greater part of the production of these crops is fed on farms, with only a relatively small quantity moving into commercial channels. Farmers' incomes from these crops, therefore, come largely from the livestock to which these crops are fed. Although production in 1940 was not unusually heavy, there was a large carryover of grain on farms and in commercial storage. The number of livestock on farms was larger than in 1939, but was still relatively low in relation to the supplies of grain.

CORN

The production of corn in 1940 for all purposes was 2,449,200,000 bushels, 6 per cent less than the 1939 crop of 2,602,133,000 bushels, but 7 per cent larger than the average of 2,299,342,000 bushels. These estimates include the grain equivalent of corn used for silage, forage, hogging off, and pasturing, in addition to the grain corn husked and picked. The total acres of corn harvested for all purposes in 1940 was 86,449,000 acres, 2 per cent smaller than the 1939 acreage of 88,430,000 acres and 13 per cent less than the average of 98,986,000 acres. The 1940 acreage is the smallest since 1894, which was at a time when corn acreage was still being expanded on new lands. Total acreage planted was 88,143,000 acres compared with 91,128,000 acres in 1939 and the average of 101,758,000 acres. The relatively low acreage was due to continuation of low corn acreage allotments under the Agricultural Conservation Program, as well as to relatively low prices and a large carryover.

Planting was delayed in the Corn Belt and the northeastern states first by dry and later by wet weather so that plantings were ten days to two weeks later than average. Wet weather extending from eastern Illinois through the northeastern states prevented timely cultivation. The early season was cool, and growth was delayed. Insect damage was relatively severe early in the season. During July the crop deteriorated as a result of deficient moisture at critical stages of plant growth. In parts of Kansas and Nebraska the corn crop was seriously affected by high temperatures during the last two weeks of the month.

During August the heat wave and drought was broken, and the crop improved in Iowa and parts of Illinois, North Dakota, Minnesota, Wisconsin, and Michigan, and to a lesser extent in Kansas and South Dakota, while the crop in Indiana and Ohio continued to deteriorate. In New England, New York, and Pennsylvania, there was frost damage, while on the South Atlantic Coast there was damage from flood and hurricane. In Texas, Oklahoma, and Arkansas, the crop improved greatly. During September, weather in the Corn Belt ranged from killing frost to a near heat wave and rainfall was spotted with the result that there was considerable variation in yields per acre. On the whole, however, the crop made some improvement.

During October, many fields of late corn that had been threatened by early frost matured as the result of warm weather during that month. While uneven ripening delayed husking, the crop as a whole made some further improvement. In Iowa, where timely rains were received at critical periods, yield was only one bushel less than the record yield of 1939. In Illinois, the yield was eight bushels less, while in Indiana it was 14½ bushels less and in Ohio 12½ bushels less. The Michigan and Minnesota crops were considerably below 1939. On the other hand, the yield in Wisconsin was the highest on record and in the Dakotas yields were above 1939. In the central parts of Nebraska and Kansas the corn crop was a failure from the standpoint of grain production, but good yields were obtained in the more important eastern corn counties.

The greatly increased proportion of the acreage planted to hybrid corn, the availability of more high-speed power machinery, and timely cultivation are factors that contributed to an above average yield in spite of the adverse season. In 1940 over half of the total corn acreage in the Corn Belt was planted with hybrid seed as compared with about two-fifths in 1939 and about one-fourth in 1938. The 1940 yield per harvested acre was 28.3 bushels compared with 29.4 bushels in 1939 and the average of 23.2 bushels.

Production of corn for grain in 1940 was 2,175,747,000 bushels compared with 2,342,710,000 in 1939 and the average of 1,987,114,000 bushels. Corn silage was produced on 4,443,000 acres in 1940, compared with 4,260,000 acres in 1939 and the average of 5,178,000 acres. Production of corn silage was 32,539,000 tons in 1940, compared with 31,388,000 tons in 1939 and the average of 32,714,000 tons. In 1940, 5,648,000 acres of corn were harvested for forage or grazed off by livestock. This was not much different from the 5,686,000 acres used for these purposes in 1939. It was considerably less than the average of 11,278,000 acres. The 10-year average, however, contains the three drought years of 1930, 1934, and 1936, when grain production on many fields was negligible or so small that grazing was the only practical method of harvesting.

A measure of the importance of corn in the agricultural industry is given by the application to the total production of the season-average price at which corn is sold. On this basis the value of production of the 1940 crop was $1,528,440,000 in comparison with the $1,476,300,000 for the 1939 crop. The preliminary average price for the 1940 crop was 62.4 cents per bushel as compared with the final season-average price for the 1939 crop of 56.7 cents per bushel.

OATS

The very large crop of oats of 1,235,628,000 bushels in 1940 was about one-third larger than the 1939 crop of 935,942,000 bushels and one-fifth more than the average production of 1,024,852,000 bushels. The relatively high production, due primarily to record or near-record yields per acre over most of the Corn Belt, was the largest since 1932. The acreage seeded was 36,237,000 acres compared with the 1939 seedings of 35,399,000 acres. Abandonment was largely confined to dry land areas. The harvested acreage of 34,847,000 acres was 6 per cent larger than the 32,968,000 acres harvested in 1939, but was 6 per cent smaller than the average acreage of 37,005,000 acres.

The 1940 oats crop was handicapped at the beginning by a late start as a result of adverse weather at the usual seeding time, but this was soon offset by very favorable growing conditions during May. Excellent growing and maturing weather prevailed through June, and the expected July heat damage to a crop seeded later than usual did not materialize. Weather at threshing and combining time was ideal, except in some northern sections of the area.

The net result of this generally favorable season was a heavy yield of high quality oats throughout practically all of the Corn Belt. In Corn Belt states east of the Mississippi River, yields ranged from 12 to 19 bushels above average. In Indiana, Illinois, and Michigan, yields were the highest in the 74 years of record. In Ohio and Minnesota, they were equaled or exceeded in only one of these years. Good yields also were obtained in the northern sections of the South Atlantic group and in Texas and Oklahoma of the South Central group. In South Carolina, Georgia, and Alabama, drought in the winter and spring was adverse, and in Mississippi, Louisiana, and Arkansas, the fall seeded crop was injured by low temperatures, and both fall and spring seeded oats were damaged by wet weather at harvest time. Hot, dry weather in June resulted in low yields in Washington and Oregon. The 1940 yield per acre for the United States was 35.5 bushels per acre compared with 28.4 bushels in 1939 and the average of 27.4 bushels per acre.

At the preliminary price for the season of 29.1 cents per bushel, the 1940 oats crop had a value of $359,819,000. The season-average price for the 1939 crop was 31.1 cents per bushel and the value was $290,922,000.

BARLEY

Production of barley in 1940 of 309,235,000 bushels was 12.5 per cent larger than the 1939 crop of 274,767,000 bushels and 37 per cent above average. This large crop, which was exceeded only by the crop of 1928, resulted from increased acreages, as well as higher than average yields per acre. A record acreage of 14,759,000 acres was sown in comparison with 14,605,000 acres sown in 1939. Abandonment was much less than in 1939 and the acreage harvested of 13,394,000 acres was 6 per cent larger than the 12,644,000 acres harvested in 1939. The average acreage harvested was 10,795,000 acres. Substantial increases in acreage were made in some states that normally plant small acreages. This fact indicates that the crop is gaining favor as a feed crop in both old and new producing areas.

The growing conditions which favored oats also favored barley, and some very high yields per acre were obtained in some of the North Central states. In Indiana, Wisconsin, Michigan, and Illinois, yields were nine bushels or more above average, and above average yields were secured in all the North Central states except Nebraska. For the United States, the 1940 yield was 23.1 bushels per harvested acre, compared with 21.7 bushels in 1939 and the average of 20.6 bushels.

The value of the 1940 crop at the season-average price (to Dec. 1) of 38.7 cents per bushel was $119,719,000. The season-average price for the 1939 crop was 40.3 cents per bushel and the value was $110,826,000.

GRAIN SORGHUMS

The 1940 crop of grain sorghums for all purposes was one of the largest of record. Total production was 121,371,000 bushels, 46 per cent larger than the 1939 crop of 83,264,000 bushels and 44 per cent above the average crop of 84,148,000 bushels. The crop has gained in favor since the drought period as a substitute for corn in the less humid areas, particularly in the Great Plains states. A total acreage of grain sorghums for all purposes of 10,978,000 acres was planted in 1940, compared with 9,403,000 acres in 1939. The area harvested for grain and forage of 9,856,000 acres is the largest of record, being considerably more than the 8,078,000 acres harvested in 1939 and the average of 7,396,000 acres.

Sorghums were injured severely during July by a shortage of soil moisture in a wide area extending from northwest Texas through western Oklahoma, central Kansas, and Nebraska. The plants fired badly, and development was retarded. Favorable August weather over most of the Great Plains area enabled sorghums to make a good recovery, however, and prospects were promising by Sept. 1, except for local frost damage in the northern part of the producing area. Above average temperatures in October were generally favorable for maturing and harvesting the crop.

The yield per acre was 12.3 bushels, compared with 10.3 bushels in 1939 and the average of 11.3 bushels. A total of 81,234,000 bushels was harvested for grain in 1940, compared with 51,448,000 bushels in 1939 and the average of 51,479,000 bushels. About 61 per cent of the total acreage was harvested for grain in 1940, compared with about 55 per cent in 1939, and the remainder of the acreage was used for forage. Above average yields of forage were obtained in all states except Colorado and Nebraska.

Although most of the grain sorghum crop is fed to livestock, much of it locally where grown, a measure of its importance is indicated by the value of production of $58,205,000 in 1940 and $46,970,000 in 1939. The preliminary season-average price in 1940 was 48 cents per bushel, and the 1939 final season-average price was 56.4 cents per bushel.

THE DAIRY INDUSTRY

By Edmund E. Vial

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PRICE RECOVERY

For the dairy industry, 1939 was the turning point at the bottom of a depression. Prices of dairy products reached the recovery peak following the great depression of the early 1930's in the latter part of 1937, but then declined rapidly during the first part of 1938. This decline was due to the general drop in business activity, consumer incomes, and commodity prices from the 1937 peak, and to the increase in production of manufactured dairy products. During the last half of 1938 and the first two months of 1939 governmental agencies, the Dairy Products Marketing Association and the Federal Surplus Commodities Corporation, purchased large quantities of butter, and supported not only the price of butter but also the price of other dairy products. From early March 1939 until late in July, however, no market purchases of butter were made by Government agencies. During the summer of 1939 prices of dairy products were in many cases the lowest since 1933. The general level of commodity prices was low and supplies of dairy products, production plus stocks, were unusually high.

In the last half of 1939 consumption of dairy products was high in relation to production, and stocks were reduced. The outbreak of the war in Europe and the rapid rise in business activity, employment, and payrolls strengthened the prices of dairy products. This improvement started in the latter part of 1939 and continued during 1940. The index number of prices paid to producers for dairy products was 124 per cent of the 1910-14 average in 1937, then declined to 109 in 1938, and to 104 in 1939, but in 1940 recovered to 113.

FARM INCOME FROM MILK

Farm income from the sale of dairy products declined about 11 per cent from 1937 to 1939. Even with this reduction dairy was the largest single source of income, making up about 17.5 per cent of the cash farm income from the sale of all crops and livestock combined. The $1,355,000,000 income from milk in 1939 compares with $1,275,000,000 from cattle and calves, $821,000,000 from hogs, $397,000,000 from wheat and $609,000,000 from cotton and cottonseed. Some of the income from the sale of cattle and calves was from dairy stock. In addition to the cash income received by farmers from the sale of dairy products it was estimated that the milk, cream, and butter consumed on farms had a value of about $368,000,000. The gross farm income from dairy products in 1939 was $1,723,000,000.

RECORD MILK PRODUCTION

After the decline in milk production due to the droughts in 1934 and 1936, the general trend in the output of the dairy herds of the country has been upward. Milk production in 1939 of about 111,000,000,000 pounds was the largest on record, exceeding the previous peak in 1938, and was 15 per cent larger than the 1924-29 average.

The dairy industry is much more stable in its volume of output than many other lines of production. In the last 16 years the annual production of milk per capita has not varied more than six per cent, notwithstanding that this period included the worst of all business depressions, as well as two of the worst drought- and short-feed years in the history of the country.

NUMBER OF COWS

Not only was milk production in 1939 the highest on record but the changes in the number of milk cows and young dairy stock indicate still further increases in dairy output. Cow numbers have been increasing about 1 per cent a year recently and further increases are in prospect because the number of heifers and heifer calves on farms is more than enough to provide for normal replacements to dairy herds in the next few years. At the beginning of 1940 there were 25,334,000 milk cows on farms, the largest number since 1936.

The droughts in 1934 and 1936 were hard on dairy herds, but with more normal feed supplies since 1937 and better prices for cows, farmers have been saving more calves. During the last two years the number of dairy heifers, one to two years, has increased about six per cent a year. The number of heifer calves saved in 1939 was large. This tendency to build up the size of dairy herds has been quite general over the whole country, increases occurring in 39 states. In comparison with the number of milk consumers in the country, however, the milk cow population is not unusually large. At the beginning of 1940 there were 19.3 cows per 100 people, which is somewhat below the longtime average, although higher than in some other recent years.

UTILIZATION OF MILK

While 111,000,000,000 pounds of milk were produced in 1939, the milk was utilized and finally consumed in a variety of dairy products. First, about 3,000,000,000 pounds were used on farms for feeding calves. About 13,000,000,000 pounds were consumed as milk and cream by the people living on farms, and an additional 10,000,000,000 pounds of milk were used for making farm butter. Thus, about 26,000,000,000 pounds, or nearly a quarter of the total production, were used on the farms where it was produced and did not enter the channels of trade.

The urban population consumed as fresh milk and cream in 1939 the equivalent of 33,000,000,000 pounds of milk. Consumption of milk and cream by the people on farms plus the consumption in cities and villages, required about 46,000,000,000 pounds of milk or 41 per cent of the total production.

Creamery butter required about 35,000,000,000 pounds of milk, and farm butter 10,000,000,000 pounds. About as much milk was needed to make the butter produced in 1939, as was consumed as fresh milk and cream.

The second most important manufactured dairy product is cheese. In 1939 about 7,000,000,000 pounds of milk were needed to produce this product. A little over 5,000,000,000 pounds of milk were used in producing condensed, evaporated, and dried milk products, and about 4,000,000,000 pounds of milk were used in producing ice cream.

CONSUMPTION OF DAIRY PRODUCTS

The domestic consumption of dairy products has been increasing along with production. The country consumed an equivalent of 110,000,000,000 pounds of milk in 1939, a new high and 17 per cent larger than the average in the predepression period 1924-29. Consumption per capita in 1939 amounted to 842 pounds, milk equivalent, the highest in the 16 years of record. In the period 1924-29 total consumption of dairy products averaged 805 pounds per capita, and in the decade of the 1930's it averaged 818 pounds. The consumption of dairy products was not curtailed during the depression of the 1930's. Less fluid milk and ice cream were used, but this was offset by greater consumption of other products.

The consumption of fluid milk and cream in cities and villages in 1939 was about two per cent larger than in 1938. On a per capita basis consumption was about the same as in the late 1920's.

The consumption of butter in 1939 was six per cent larger than in 1938. This marked increase was due in large part to the large distribution of butter for relief. On a per capita basis, however, butter consumption in 1939 was about the same as in the period 1924-29. Cheese consumption in 1939 was slightly higher than in 1938, but on a per capita basis 27 per cent larger than the 1924-29 average. Consumption of evaporated milk and ice cream also established new highs in 1939. In fact the per capita consumption of manufactured dairy products in 1939 was the largest in more than 40 years, and probably has not been exceeded more than once in the history of the country.

GOVERNMENT AID TO DAIRYMEN

The government has given substantial aid to dairymen during recent years, both through the regulatory programs including market agreements and orders and by its surplus removal operations.

The marketing agreements operated in 27 large milk markets during the year and under them producers sold about $195,000,000 worth of fluid milk. In addition, nationwide programs were carried out to improve the marketing conditions and stabilize prices for evaporated and dry skim milk.

Under the surplus removal program, the Government expended $17.825,000 for dairy products during the year ended June 30, 1940. Government agencies bought and thereby removed as price-depressing surpluses more than 40,000,000 pounds of butter, 4,250,000 pounds of cheese, 66,000,000 pounds of evaporated milk, nearly 5,000,000 pounds of dry skim milk, and 60,500,000 quarts of fluid milk. These products were distributed for consumption to needy persons through direct distribution to persons on relief, by means of the stamp plan, school lunches, etc.

EFFECT OF THE EUROPEAN WAR AND DEFENSE PROGRAM

Although it is impossible to foresee what the ultimate effects of the war will be, so far it has aided dairymen, at least temporarily, more than it has harmed them. The stimulation to industrial employment and payrolls by the war and the defense program has provided a better domestic market for milk products. The war has also stimulated exports of manufactured dairy products at a time when that trade had declined to a very low level.

The occupation of Denmark and Holland by Germany eliminates the export of butter, cheese, and concentrated milk from those countries, except to Germany. While England can obtain supplies of butter and cheese from the dominions there has been an increase in her demand for condensed, evaporated, and dried milk from this country. Other countries, which formerly imported concentrated milks from the Netherlands, may turn to the United States for supplies. The war has also curtailed our imports of cheese.

The possible expansion in exports, however, is of minor importance to our dairy farmers as compared with the general trend of prices, employment, and payrolls in this country. Dairying is essentially a domestic industry, geared to meet the consuming demand of the population of this country. As the buying power of urban families improves, the position of the dairy industry likewise tends to improve.

DISEASES OF PLANTS

By H. A. Edson

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FLAG SMUT

No spectacular new outbreaks of plant diseases seriously affecting crop production occurred in the United States in 1940, but a number of potentially dangerous outbreaks should be recorded. Flag smut (*Urocystis tritici*) of wheat was discovered in August in the Goldendale area in the State of Washington where it appeared to be confined mainly to one farm, but with a trace of the disease on a second farm a few miles distant. Flag smut is a seriously destructive disease of wheat in Australia and in several other foreign countries and might prove to be disastrous in Pacific Coast areas where climatic conditions are somewhat comparable to those in the foreign areas referred to. The disease has previously been found in the United States only in limited portions of Kansas, Illinois, and Missouri where it was recognized in 1917. Through the prompt adoption of protective measures it was brought under control and it is hoped eradicated from much of the area.

WHEAT SCAB

Wheat scab (*Gibberella zeae*) was more prevalent in Pennsylvania, Maryland, Delaware, Virginia, West Virginia, Indiana, and adjacent areas than for many years. Weather conditions at flowering time and for several days thereafter were almost ideal for scab infection and development. The severity of infection was particularly noticeable on wheat following corn in the rotation. Fruiting bodies of the causal organism were conspicuous on the corn stubble which was obviously the principal source of the infection.

RUSTS

Crown rust (*Puccinia coronata*) of oats was prevalent in more than average amounts in central and eastern fields. Stem rust (*Puccinia graminis*) of wheat was very severe in California and appeared early in Texas and Oklahoma, but fortunately its development and spread were checked sufficiently to prevent severe damage except in limited local areas. Stem rust appeared on grasses and on both volunteer and fall planted wheat in Oklahoma and portions of Texas in the late summer and early fall, and may well become a serious menace in the spring. Leaf rust (*Puccinia rubigo-vera tritici*) while widely observed was less destructive on the whole than in many years. Damage as high as 50 per cent, however, was reported from some fields of susceptible varieties in Georgia. Loose smuts (*Ustilago* spp.) of wheat and oats have appeared in increasing amounts during recent years. Fields with losses up to 20 per cent were frequently observed in 1940. Following two open winters and a moist spring, fungous diseases of grasses were very prevalent in the Northwest. Smuts, rusts, leaf spots, and root rots were frequently observed.

TOMATO BLIGHT

Curly top of tomatoes, a virus disease known also as western yellow blight, was unusually severe in Southern California where it is generally confined to the inland tomato areas. This year it was found in severe form along the coast in San Diego, Orange, Los Angeles, Ventura, and Santa Barbara counties with losses ranging from 25 to 50 per cent. The disease also developed in significant amounts for the first time in the Lower Rio Grande Valley in Texas.

POTATO DISEASES

Late blight (*Phytophthora infestans*) of Irish potato appeared over a wide area but varied greatly in severity from region to region. Generally speaking the damage in southern fields was slight. The disease developed early in New England but except in limited portions of the Aroostook Valley in Maine and in low lying, unfavorably located, or neglected fields of other sections of these states the losses were not serious. Adequate spray schedules and a relatively dry midseason served to hold the disease in check. The late crop in New Jersey suffered severely. Reports from New York, Pennsylvania, Michigan, and Wisconsin all indicated more than usual incidence of late blight and losses varying from a trace to nearly total loss, depending upon the local conditions and the extent to which control through adequate spray was followed or neglected.

Ring rot (*Phytomonas sepedonica*), a serious bacterial disease of potatoes recently recognized in this country, was found during the year in at least 32 of the 48 States, including all the large producing areas. This disease causes a late season wilting of the stalks and a rotting of the tubers. It is seed borne but fortunately all indications are that it does not survive in the soil and can be prevented by avoiding tubers from infected fields for planting.

About 25 years have now elapsed since another serious potato disease, potato wart (*Synchytrium endobioticum*), was introduced into miners' gardens in isolated areas of Pennsylvania, Maryland, and West Virginia through the planting of imported table stock. When the disease was discovered the extent of the infestation was promptly determined by thorough surveys and the areas placed under strict quarantines so adequately administered that no single instance of the spread of the disease has been known. It has never appeared in a commercial area. It is now possible to report substantial progress toward the complete eradication of the disease through the use of ammonium thyocyanate in the infected gardens. The present wart quarantine in Pennsylvania includes the whole of four townships and 40 scattered towns and villages in 13 counties, but the infection is confined entirely to home gardens of which 928 have been found infected. Soil treatment for the eradication has been applied to all infected gardens in eight areas and after five years of checking without finding any evidence of wart the Department of Agriculture of Pennsylvania has determined that the quarantine may safely be lifted. The eradication treatments are under way in 18 other areas with promising prospects of success. The ultimate elimination of this menace to the potato industry of the United States now appears entirely practicable.

REAPPEARANCE OF EEL GRASS

The year also brought additional encouraging reports of the reappearance of eel grass (*Zostera marina* L. var. *stenophylla* Aschers & Grabner) at various points along the Atlantic coast line. This important saltwater plant was the chief food of the Atlantic brant (*Branta bernicla*), and also provided extensive cover for shellfish and fish until its almost complete disappearance a few years ago as the result of a wasting disease. In addition to its value as food for fish and waterfowl, the plant was formerly harvested in large amounts for bedding, packing, and insulation material. It now appears to be reestablishing itself and producing seed at several points on the Maine coast and in the waters from Long Isand, New York to Narragansett Bay, Rhode Island.

DISEASES OF FLOWERS

Azalea flower spot (*Ovulinia azaleae*) was definitely identified attacking azaleas in the Houston area in Texas during March and April, thus extending the known range of the disease to that state.

Tulip failures were unusually prevalent in many northeastern districts due to rotting of the bulbs and stems. The conditions developed in constant association with *Botrytis tulipae*, *Penicillium* sp. and *Rhyzoctonia tuli-*

parum. One or the other of these molds or some combination of them are believed to have been the primary cause of the decay with such factors as poor drainage, low winter temperatures, and the wet spring as contributing agents.

White streak, a virus disease of narcissus, causing abnormal discoloration of foliage with white streaks as the final expression, has been reported from several production centers. The disease is a serious one of considerable economic importance, not only because it detracts from the beauty and vigor of the foliage of affected plants, but because of the early maturity which it induces. Affected plants ripen prematurely shortly after blooming, thus circumventing the normal growth period of the bulbs.

An unusual outbreak of leaf spot (*Septoria cornicola*) occurred on the white form of flowering dogwood (*Cornus florida*) in New Jersey, Maryland, and the District of Columbia during a rainy period in July. It is interesting to note that the red variety (*rubra*) was not affected by the disease.

TREE DISEASES

The sycamore (*planetree*) disease caused by a species of *Ceratostomella* has been found in Middleboro, Ky.; Knoxville, Tenn.; and Elsmere, Del., and at various points in the open among the native sycamores in West Virginia and North Carolina. The reports constitute first records of the appearance of this disease at the points mentioned, although it has previously been found in Delaware at Claymont. Both the London plane (*Platanus acerifolia*) and the American sycamore (*P. occidentalis*) are attacked and killed by the disease.

FRUITS

Persimmon wilt (*Cephalosporium* sp.), first discovered in Tennessee in 1937, continues to extend its range and is established southward from Tennessee and North Carolina to the Gulf and in Florida to the southern range of its host and westward into Texas.

The yellow red virus disease of peach trees and choke cherries is gradually extending its range in New York State and in southern and western New England where it was first recognized a few years ago and described as X disease. Very similar, if not identical, virus diseases of peaches and choke cherries have been observed in more western areas. Affected choke cherries (*Prunus virginiana*) have recently been reported from Illinois and Wisconsin, and the disease has developed on the closely related *P. demissa* in Utah, Idaho, and Oregon. Very similar virus diseases of peach trees under investigation in California, Utah, Idaho, Oregon, and California appear to be very closely allied, if not identical with one another and with the yellow red virus disease of the East. In California, where the trouble has been known as leaf casting yellows, experiments have yielded strong indications that the causal virus may be the same as that producing the buckskin disease of cherries. In Utah the disease has become established in some orchards in the principal peach-growing areas and presents a problem of important commercial magnitude.

XI. AGRICULTURE AND ALLIED INDUSTRIES

INSECT PESTS AND PLANT QUARANTINES

By Lee A. Strong

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NEW INSPECTION HOUSE

During 1940 a building was completed in Hoboken, N. J. to be used for the inspecting of plant materials which may be imported under permit for propagation. The fourth floor of this new building has been specially designed and equipped to serve as a receiving station in connection with the introduction from foreign countries of natural enemies of insect pests.

APPLE AND PEAR INSECTS

A new laboratory was established at Charlottesville, Va. for the study of Comstock's mealybug which has been reported with increasing frequency since 1934 from numerous orchards from South Carolina to Ohio and Connecticut. Thus far the use of insecticides against this insect has not been successful; special attention, therefore, is being given to control by natural enemies. Three large-scale orchard tests of tree scraping and banding to control codling moth were carried on at Yakima, Wash. Similar tests conducted during five seasons have shown that the parts of the orchard so treated produced more good fruit than the untreated blocks even when one less spray was applied. In the Hudson River Valley two sprays of phenothiazine, following a light arsenical program, successfully reduced a heavy infestation of the apple maggot.

PEACH INSECTS

There was a marked increase in parasitization in peach orchards receiving releases of the most effective oriental fruit moth parasite now available. During the three years ended at the close of the 1939 season, 12 experimental releases of this parasite were made to test the value of mass liberation of parasites early in the season in areas where the parasite is established, and all but one of these experiments has been followed by a lowering of ripe-fruit infestation in the year of release. Ethylene dichloride emulsion, developed by the Bureau's laboratory at Fort Valley, Ga., is coming into wide practical use against the peach borer, and savings as high as 25 per cent for material and 80 per cent for labor over the former paradichlorobenzene treatment have been reported. In field cage experiments at Fort Valley dichloroethyl ether continued effective against larvae of the plum curculio in the soil.

PEACH MOSAIC

During the year, in the peach mosaic eradication campaign, 96,173 properties were visited on which 3,851,000 trees were inspected, disclosing the presence of 64,194 mosaic-affected trees of which 18,396 had been removed at the end of the year 1939. Additional trees to the number of 155,600, largely in abandoned orchards, were removed as a sanitary measure. In this work the automobile laboratory unit traveled over 19,000 miles; 5,000 samples of insects occurring in orchards were taken and are being used as a guide for transmission experiments to ascertain the vector of this disease.

PHONY PEACH DISEASE

Cooperative activities for the control of phony peach during the past year resulted in the inspection of 92,000 properties on which were 13,051,000 trees of which 58,285 were found to be affected by this disease. Of the infected trees 27,533 had been removed by the end of the year, and an additional 9,518,000 escaped and abandoned trees were removed as a sanitary and precautionary measure.

GRAPE INSECTS

A study by the Sandusky, Ohio, laboratory on the practical use of cultivation for controlling the grape berry moth in the vineyard indicates that about 86 per cent of the cocoons are found in a soil strip 18 inches wide directly under the vines. This emphasizes the importance of giving special attention to the area under the trellises, which is the most difficult to reach. Only about 18 per cent of the moths are prevented from emerging by ordinary spring cultivation. Forty-five per cent of the moths were prevented from emerging by fall plowing, but the method as used in the experiment has certain serious disadvantages from a horticultural standpoint. An all-season treatment that included four applications of phenothiazine gave a high degree of control of the grape berry moth under conditions of moderate infestation. In a severely infested vineyard the results were a little less satisfactory. The fruit showed comparatively little spray residue. A tank-mix nicotine-bentonite program, which included four applications during the season, gave an outstanding degree of control, even under conditions of severe infestation, but it left such a heavy deposit of visible residue as to render the fruit unmarketable, except possibly for wine or juice.

NUT INSECTS

Field experiments at Albany, Ga. indicate that tank-mix nicotine-bentonite, nicotine sulfate with rosin-residue emulsion and fish oil, and a dust of sulfur and lime containing five per cent of lubricating oil, gave definite reductions in the proportions of nuts infested by hickory shuckworm.

Experiments at Monticello, Fla. indicate that a high degree of control of the pecan nut casebearer can be obtained by spraying late in the summer with lead arsenate or calcium arsenate combined with bordeaux mixture.

DRIED-FRUIT INSECTS

A review of the results of experiments with cold storage for the control of dried-fruit insects indicates that the time-temperature combinations that may be expected to be lethal will be found to be in the neighborhood of the following figures: saw-toothed grain beetle adults, 32° F. for less than 27 days, 36° for less than 28 days; saw-toothed grain beetle larvae, 32° for less than 15 days, 36° for less than 20 days; Indian-meal moth larvae, 32° for less than 28 days, 36° for less than 50 days; raisin moth larvae, 32° for more than 100 days, 36° for more than 115 days.

JAPANESE BEETLE

The area of general infestation of the Japanese beetle is approximately 16,300 square miles, an increase of 1,183 square miles over that of the previous year.

Trapping for the Japanese beetle showed a carry-over of infestations in 78 cities and towns in nonregulated territory and 48 first-record infestations, the latter in Indiana, Maryland, Michigan, New York, Ohio, Pennsylvania, Virginia, and West Virginia. Lead arsenate was applied for the control of Japanese beetle to a total of nearly 900 acres in Georgia, Illinois, Indiana, Michigan, Missouri, New York, North Carolina, Ohio, and Virginia.

During the summer of 1939 cooperative work was undertaken with the New Jersey Department of Agriculture and the University of Maryland for a colonization of Type A milky disease, a very effective disease in controlling grubs of Japanese beetle. In a natural inoculation of this disease in northeastern Maryland the population of white grubs was reduced from 38 to six per square foot. Two-thirds of the grubs found were affected with the disease.

The most significant development in the work on fumigation of balled and potted nursery stock and farm produce for the control of the larvae, eggs, and adults of the Japanese beetle was the importance of the conditions under which the material is held during the post-fumigation period. Distribution of the two most important

Japanese beetle parasites was continued.

PEAR PSYLLA IN THE NORTHWEST

A program for the suppression of an incipient infestation of the pear psylla in the Pacific Northwest was undertaken in cooperation with state agencies in Washington and Idaho. This insect was found for the first time in the Northwest in 1939. It has been known as a serious pest in the Northeastern states for more than 100 years.

PINE BARK BEETLES

Field work on the hazard-inventory survey of the commercial ponderosa pine area in northeastern California was almost completed. This survey was based on the results of research in Oregon and California on the susceptibility of ponderosa pine to attack by insects, particularly bark beetles. Forest stands or areas have been given hazard ratings based on the history of their recent losses from insects and on the present condition of the individual trees. The most susceptible trees on the high-hazard areas may be marked for cutting. This will enable the owners to concentrate their logging operations in the areas where there is most danger of serious losses from bark beetles in the near future. The Forest Service and several large private operators in California and Oregon are making immediate use of the information supplied by the Bureau and are modifying their management plans to permit rapid and frequent coverage of their lands in an effort to take out susceptible trees before these are attacked by insects and rendered worthless.

The outbreak of the Black Hills beetle in the central Rocky Mountains, which was so destructive during the period 1935-39, has been reduced to an endemic status. Conditions are not so encouraging in the Intermountain region, especially on the Powell and Wasatch National Forests in Utah. Losses caused by the western pine beetle increased in parts of California and southern Oregon, and several control projects were conducted by the Forest Service, the Office of Indian Affairs, and private timberland owners, following Bureau recommendations.

AMBROSIA BEETLES

Ambrosia beetles and the associated stains caused by fungi constitute one of the most serious problems of the lumber industry in the southern states. Dichlorodiphenyl oxide gave consistent protection against damage by these insects and is now being tested on a commercial scale in the Gulf states. A simpler method of preventing attacks by ambrosia beetles is to end-rack lumber for from 12 to 15 days.

EUROPEAN SPRUCE SAWFLY

An insect disease in 1940 checked the inroads of the European spruce sawfly, an insect immigrant from northern and central Europe that has been defoliating spruce forests in New England for the last five years. An infection has almost wiped out the needle eating worms in southern Vermont and southern New Hampshire. In September, 1940 practically no live sawfly worms were found in Maine either. Maine, however, is one of the areas where adult sawflies may not come out from their cocoons for two or three or even four years. Holdover cocoons remain a potential threat in Maine.

GYPSY MOTH

Eight thousand one hundred and twenty-two attracting cages in which were placed charges of an extract obtained from the tips of the abdomens of female moths in order to attract males and locate infestations were put out in 73 towns. Of these, 148 in 25 towns attracted male moths and resulted in the discovery of 98 infestations totaling approximately 9,000 egg clusters.

Tests were carried on during the year to determine the feasibility of recording gypsy moth defoliation by means of autogiros. During the summer of 1939 defoliation of various degrees of intensity covered 492,640 acres, a substantial increase over the acreage recorded in 1938. Defoliation in the area between the Connecticut River and the barrier zone was slightly less than in the previous year, and no defoliation was recorded in the barrier zone or in New York, New Jersey, or Pennsylvania.

DUTCH ELM DISEASE

During the fiscal year 1940 there was a reduction of 49 per cent in the number of trees found to be infected by this disease. There were 16 confirmations of the finding of this disease outside of the major disease area; these were in Indiana, Ohio, and Maryland. Newly discovered main-area infections were found in New York, Connecticut, Pennsylvania, and New Jersey. Autogiro scouting of approximately 4,500 miles of railroad rights-of-way was repeated during the summer with negative results. Since the discovery of this disease in the United States in 1930, 57,400 elms have been found to be infected. The entire zone in which field operations are being carried on is now 11,610 square miles, an increase of only 790 square miles over 1939. During the year 9,864 infected trees were removed and 206,540 additional trees were removed in the sanitation program and 56,428 trees in the selective operations. The total of all trees removed the previous year was over 773,000. This brings the grand total of elms removed since 1933 to 5,576,680.

WHITE PINE BLISTER RUST

The combined work of the Bureau and its cooperating agencies during the calendar year 1939 resulted in the eradication of 82,312,000 currant and gooseberry plants on white pine control areas covering 1,863,000 acres. There was no large extension of limits of the known infected area in this country. These bushes are the necessary alternate hosts for the very serious disease of pine known as white pine blister rust.

The breeding of plants that are immune or resistant to attack by insects and insect-borne disease is occupying increasing attention of entomologists, plant breeders, and plant pathologists.

INSECT-RESISTANT CORN

Extensive tests in several localities of inbred and hybrid field and sweet corn for resistance to the corn ear worm showed wide differences in the degree of infestation and gave promise that reduction of injury by this insect may be accomplished through the eventual commercial use of resistant strains of corn. Similar breeding work for resistance of corn to attack by the European corn borer indicates similar possibilities.

INSECT-RESISTANT WHEAT

Continuation of the work in breeding wheat resistant to the attack of hessian fly has resulted in the production of a variety that in California gives absolute immunity to hessian fly infestation, whereas check varieties were 70 per cent infested. Similar, though less conclusive, results were obtained on experimental breeding of hard red winter wheats in Kansas.

ALFALFA RESISTANT TO PEA APHID

Plant-breeding work with alfalfa resulted in the production of strains that show marked resistance to the pea aphid. Maximum plant infestation of resistant varieties never exceeded 22 per cent, whereas susceptible varieties were 100 per cent infested.

WHITE FRINGED BEETLE

This insect has been apparently eradicated in several limited areas and materially reduced in all infested areas, thus lessening the danger of natural spread. Control work consists of the use of calcium arsenite and cryolite dust on host plants; of an oil-base emulsion to eliminate host vegetation along railroad rights-of-way, roadsides, and waste areas; clean cultivation practices in crop areas; and sanitation practices on and in the proximity of places from which materials likely to carry the adult beetles are shipped. Effective application of insecticidal dusts in nonresidential areas was accomplished by the use of Federal-owned airplanes. The total known area now infested by this insect comprises approximately 70,000 acres, located in Alabama, Florida, Mississippi, and Louisiana.

MORMON CRICKET

Sodium fluosilicate bait was used in all infested states and gave satisfactory control even in areas of heavy infestation. This material has been specially valuable in districts where both grasshoppers and crickets are present. At the end of the year nearly 1,200,000 pounds (dry weight) of bait had been spread on more than 100,000 acres, metal barrier had been set up for about 200 miles, and more than 25,000 gallons of oil had been used in oiling streams and irrigation ditches. It is estimated that the operations protected more than 1,000,000 acres of crop lands. Damage occurred on only about 7,000 acres of crops. Some loss to vegetation occurred on 900,000 acres of range land. Serious infestations of Mormon crickets in Montana and Wyoming have been reduced to a status of little economic importance. Here and elsewhere the increased use of power equipment in spreading dust and bait has made possible increased protection at a reduced cost.

Mormon cricket control was carried on in cooperation with the States of Colorado, Idaho, Montana, Nebraska, Nevada, Oregon, South Dakota, Washington, and Wyoming, with funds allotted to the Bureau from appropriations granted for the control of emergency outbreaks of insect pests and plant diseases. Other Federal agencies cooperating in the program included the Indian Service and other branches of the Department of the Interior, the Soil Conservation Service, the Civilian Conservation Corps, and the Forest Service. The plan of operation and the division of activities of the respective Federal and state agencies as worked out in advance of the field season were similar to those of the previous year.

Mormon cricket adult and egg surveys conducted in the summer and fall of 1939 indicated that more than 14,000,000 acres were infested, a reduction of about 4,000,000 from the previous season. More than 1,000,000 pounds of sodium arsenite dust were used in protecting crops from invasion by migrating crickets. The hatching of crickets in 1940 began soon after the middle of March, and control operations were begun on April 7. Approximately 400 laborers were employed at the peak of operations in June.

GRASSHOPPERS

Operations for the control of grasshoppers in 24 western states were continued in cooperation with the several states and interested Federal agencies. The activities of the campaign for the 1939 crop season were especially effective on idle range land adjacent to crop land and resulted in a crop saving estimated at over $128,000,000, or $52 worth of crops for each Federal dollar spent on control.

The outstanding accomplishment of the season's campaign was the effective control of infestations of the long-winged migratory grasshopper through the use of light airplanes for survey purposes and of heavy planes for the spreading of bait. Two of the planes had been equipped during the winter with modified types of bait hoppers which effected an even and efficient distribution of the standard grasshopper-bait mixture. The aerial equipment was brought into use in areas inaccessible by means of ground spreaders, where infestations were such as to constitute a menace to crop areas. The use of planes in the application of sodium fluosilicate bait to combat grasshoppers as well as Mormon crickets in areas where both these pests exist gave effective results. Three Bureau-owned planes were equipped with bait hoppers. Five additional planes were hired on a contract basis for limited periods to combat heavy infestations of migratory grasshoppers in the area centering around Amarillo, Tex.

CHINCH BUG

Fall surveys in 1939 indicated extensive infested areas in southern Iowa, the northern third of Missouri, southeastern Nebraska, the eastern third of Kansas, several counties in northeastern Oklahoma, and localized areas in Indiana and Illinois. Nearly 2,500,000 gallons of creosote were furnished by the Federal Government to 167 counties in these states. The use of this material resulted in very large savings of valuable corn crops.

BLACK STEM RUST

The cooperative control campaign to eradicate barberry bushes, which act as an alternate host for black stem rust of small grains, resulted in the removal of over 31,300,000 barberry bushes on over 2,700 properties. This brings the grand total of barberry bushes removed to 259,000,000 on over 34,000 properties.

SOIL FUMIGATION FOR WIREWORMS

Early experiments with dichloroethyl ether gave considerable promise. The margin of safety between effective dosage and plant injury, however, is narrow. Naphthalene as a soil fumigant is found to be effective only under certain soil type and temperature conditions.

SWEET-POTATO WEEVIL

Cooperating Federal-state control and eradication activities against the sweet-potato weevil were continued during the year in Alabama, Georgia, Mississippi, and Texas. Four counties were released from quarantine, all infestations having been eliminated.

PINK BOLLWORM

During 1939, 400,000 acres in southern Texas were cleaned for the control of this pest. In the lower Rio Grande Valley there was an increase in infestation on both the Texas and Mexican sides of the river. There was a spread from that region to additional southern and southwestern Texas counties, and light infestations developed in several additional west-central counties of Texas in the vicinity of San Angelo and Colorado. During the past season all known wild-cotton colonies in southern Florida were cleaned twice and a considerable part of the area was cleaned three times. Over 1,000,000 cotton plants, seedlings, and sprouts were destroyed on approximately 39,000 acres.

FOREIGN PARASITE INTRODUCTION

Owing to war conditions in Europe, the Bureau's field station for the collection of foreign parasites to be shipped to this country located at St. Cloud, France, was discontinued in October, 1939. Two members of the staff of this station were assigned to work in South America with headquarters at Montevideo, Uruguay.

INSECTICIDES

During the year a new method for dispersing insecticides was devised. This consisted of spraying the liquid insecticides or solutions of insecticides on a hot surface so that the material is dispersed as smoke. Although in the experimental stage, this method may prove to be an efficient way of controlling insects in closed spaces.

FISHERIES

By Charles E. Jackson

Acting Commissioner, Bureau of Fisheries, Department of the Interior

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COMMERCIAL CATCH STATISTICS

The world's annual catch of fishery commodities is about 35,000,000,000 pounds, valued at $761,000,000. The United States, including Alaska, ranks probably first in the value of its fishery products; and only Japan, which in 1939 reported a catch of 8,107,000,000 pounds, may exceed the United States also in the volume of its yearly production. Latest data on worldwide catch and value are not currently available. Other countries known to have a catch of over 1,000,000,000 pounds annually, however, are Canada, China, Chosen, Germany, Norway, Union of Soviet Socialist Republics, and Great Britain including Northern Ireland.

During 1938, the most recent year for which complete figures are available, a breakdown shows the United States catch of fish and shellfish amounted to 4,253,000,000 pounds, which brought the 130,000 fishermen of the country an income of $93,547,000.

The Atlantic Coast exclusive of Florida produced 1,369,483,000 pounds of fishery products in 1938, of which approximately half came from the New England section. Fisheries of the Gulf Coast, including the total Florida catch, produced 395,347,000 pounds of fish and shellfish. Pacific Coast fishery landings, amounting to 1,525,885,000 pounds, were composed principally of the 1,110,401,000 pound catch of sardines or pilchards. The Alaska catch was 798,823,000 pounds, of which approximately 600,000,000 pounds was salmon. Freshwater fisheries of the Great Lakes and the Mississippi River produced 163,907,000 pounds.

Less than one-half of the total catch is utilized as food, while over one-half is utilized as meals, oils, and other products used in arts and industries or is discarded as waste products.* Manufactured fishery products, of which over 50 per cent were canned, were valued at $156,131,431 in 1938. About 186,096,000 pounds of fishery products valued at $13,000,000 were frozen.

MARKETING

As a means of developing more orderly and economic marketing of fishery products, the Bureau of Fisheries (now merged with the Bureau of Biological Survey), Department of the Interior has established field offices for the daily collection and dissemination of fishery market news in New York, Boston, Chicago, Seattle, Jacksonville, and New Orleans.

Thirty-five fishermen's cooperative marketing associations, reported as in operation on both coasts and on the Great Lakes, are directly or indirectly associated with the marketing of fishery products. Marketing associations range from bargaining agencies which function only in price negotiations to organizations that actually market the catch of member fishermen. One cooperative operates a plant for its own refrigeration and storage of fish.

NEW FISHERIES

Recent developments indicate that new and important fisheries may be exploited in the future. The rosefish of New England, a few years ago virtually unknown in fish markets, is now being landed in annual quantities of 77,000,000 pounds and sold in filleted form, especially in the Middle West where it is known as "ocean perch." Less spectacular but important developments of the whiting and pollock fisheries have occurred, and new fishing areas for tuna in the Pacific Northwest have been found. Shrimp grounds having recently been discovered in previously unfished waters in the Gulf of Mexico, and a new shrimp fishery is being exploited off the Maine coast.

FISH PROCESSING SHIPS

Playing an important part in developing many of the world's fisheries are the factory ships ranging in size from less than 100 net tons to highly mechanized ships of 43,000 tons displacement. Absent from port as much as six months and cruising up to 12,000 miles, these floating factories perform nearly every type of fish processing, including icing, freezing, salting, canning, and the manufacture of meal and oil.

RECREATIONAL FISHERIES

The great recreational and economic importance of angling may be seen from the fact that during the

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* See "The Significance of By-products to the Fishery Industry," by Richard T. Whiteleather, Associate Fisheries Statistical and Marketing Agent, U. S. Bureau of Fisheries.

1937-38 season 7,436,177 fishing licenses were issued to sport fishermen, the states deriving therefrom a revenue of $10,221,787.72. To this total must be added the large and constantly increasing number of anglers in salt water, where no license is required except in California, as well as others who qualify for exemption from the freshwater license requirements. The total number of persons fishing without a license may be nearly as large as the number of licensed fishermen.

This army of anglers imposes a heavy drain on supplies of inland fishes, also menaced by continual reduction of habitable waters in the face of encroaching industry and agriculture. In many areas fishing is maintained only by the most intensive stocking and by stringent legal regulation of bag limits. Nevertheless, demand continues to exceed supply.

CONSERVATION OF MARINE FISHES

Many of the uncertainties and economic hazards of the fishing industry are traceable to the great annual variations in the supply of marine fishes. Stabilization of yield, an important goal of modern fishery science, is sought by elaborate studies of the biology of fish populations under the intensive exploitation characteristic of present day fishing. Studies of this type are now being prosecuted by the Bureau of Fisheries for such important commercial species as the haddock, mackerel, and flounders in New England, the shad and striped bass of the Atlantic Coast, the common shrimp of the South Atlantic and Gulf States, the California pilchard, and the Pacific salmons and herring.

An excellent example of the practical applications of science is afforded by the haddock, which during the past decade came to support the first-ranking New England fishery under the stimulus of expanding markets for filleted fish. Between 1927 and 1931, intensive fishing reduced the availability of haddock 75 per cent on the principal fishing grounds. Scientific studies by the Bureau of Fisheries have now led to discovery of the level of abundance at which production and growth of young haddock are at a maximum. It is believed that stabilization of the fishery at this level will insure sustained yields while safeguarding future supplies.

FRESH WATER FISHES

Control over supplies of fresh water fishes is more easily exercised, although many difficulties must be overcome. In an effort to restore suitable habitats for fish and to increase the natural productivity of streams and lakes, the Bureau of Fisheries is making an intensive study of industrial pollution in relation to aquatic life. It is also conducting a wide variety of scientific studies designed to increase the returns from plants of hatchery reared fish. The Bureau operates 98 major fish hatcheries which produced during the fiscal year 1939 a total of 8,024,540,685 fish and eggs of 47 different species, of which the great bulk were commercial, both freshwater and marine. Among the freshwater game species most extensively propagated were brook, Loch Leven, rainbow, and black-spotted trout, largemouth and smallmouth black bass, rock bass, sunfish, crappie, and catfish.

OYSTERS

Lack of an adequate supply of first quality oysters is the principal problem of the oyster industry. While oyster farming is highly developed in New England and the Middle Atlantic states, the South depends largely on harvesting from public or state-owned beds, where it is difficult to control the size and quality of the product. In order to promote oyster culture in the South, the Bureau of Fisheries is establishing experimental oyster farms in the vicinity of its laboratories in North Carolina, South Carolina, and Florida. In addition, a new laboratory for oyster cultural investigations has been constructed at Milford, Conn.

FEDERAL AND STATE REGULATION

Within the territorial waters of the United States the individual states retain complete control over the fisheries. In the Territory of Alaska, however, the Federal Government has jurisdiction over the fisheries, the most important of which are salmon and herring. On the basis of investigations conducted by the Bureau of Fisheries, the Secretary of the Interior prescribes regulations controlling the areas where fishing is permitted and the length of the fishing season in each area.

FUR SEALS

The Bureau of Fisheries also administers the fur seal herd of the Pribilof Islands, from which come about 80 per cent of the world's seal skins. Under the Bureau's management, the Pribilof Islands' fur-seal herd has grown from 130,000 animals in 1911 to about 2,020,000 in 1939. The herd yielded a total of 60,473 skins in 1939, a 50-year record. Only the skins of 3-year-old surplus males are taken.

LEGISLATIVE DEVELOPMENTS

The most valuable commercial species of Great Lakes fish continue in a state of critical depletion, owing largely to the fact that widely differing regulatory laws of the several bordering states and the Province of Ontario affect the same bodies of fish in the same waters. Under the auspices of the Council of State Governments steps have been taken looking toward the establishment of an international treaty with Canada, similar in general aspects to the migratory bird treaty. An International Board of Inquiry for the Greak Lakes fisheries was established Feb. 29, 1940 through an exchange of notes between the Secretary of State of the United States and the Minister of Canada. Pending adoption of an international treaty, formation of an interstate compact for unified control of United States fisheries on the Great Lakes has been authorized by Congress. An Atlantic Coast compact for the better solution of migratory fish conservation problems is also under consideration.

Progress toward the adoption of anti-pollution legislation was made when the Barkley Bill, with the Mundt amendment, which provides for the establishment of a Division of Stream Pollution Control in the U. S. Public Health Service was passed by the Senate on May 1, 1939. The bill provides for technical and financial assistance to the states in the reduction or elimination of stream pollution hazards. Favorably reported with minor amendments by the House Rivers and Harbors Committee on May 10, 1939, the Barkley Bill will doubtless receive early consideration by the House of Representatives.

FORESTRY

By Charles E. Randall

Forest Service, Department of Agriculture

FORESTS IN THE DEFENSE PROGRAM

Speeded preparations for national defense in the midst of unsettled world conditions in 1940 brought attention to the part played by forest resources in a defense program. The forests provide many of the materials indispensable to defense—materials for such things as aircraft, guns, gas masks, explosives, chemicals, hangars, cantonments, ship building, motor trucks. They also provide vast unsettled areas suitable for military maneuvers and experimentation. Without a continuing supply of trees and forest products, the strength of the United States would be inestimably less. One-third of the land area of the United States is classed as forest land. Were all of this forest land productively managed and wisely used, the economic position of this country would be greatly improved.

Increasing demands on the forests for defense needs were apparent in 1940. At the same time, conservation agencies warned against repeating the mistakes of the first World War, when there was excessive overcutting of the most accessible timber stands and overcrowding of western ranges under pressure of emergency. "The forests of the United States are making large contributions to national defense," said Henry A. Wallace, then Secretary of Agriculture. "But the Nation has not provided adequately for defense of the forests." Removal of forest products, and in some cases inexcusable waste and destruction due to fire, insects, and disease, are still causing an annual drain in excess of annual growth.

Approximately 462,000,000 acres of forest land in the United States are capable of producing commercially valuable timber. Only about 215,000,000 acres now bear trees of saw-timber size. About 174,000,000 acres are understocked, with small, diseased, or weed trees. And an area of at least 73,000,000 acres is producing virtually nothing at all. The nation is faced with the decision as to whether or not it will make the investment required to put this land in production and to regulate use and provide adequate protection for its total forest area.

JOINT CONGRESSIONAL COMMITTEE ON FORESTRY

On March 14, 1938, President Roosevelt asked Congress to make a study of the forest situation in the United States and to make recommendations for solving national forest problems. Congress authorized a joint committee on forestry and directed it to submit a report not later than April 1, 1941.

The Committee completed its public hearings in most major forest regions during 1940. Representatives of the general public, of forest and allied industries, of owners of industrial and farm forest land, of water conservation districts, and of local, state, and Federal governments, were heard. Early in the year at Washington, D.C., the U.S. Forest Service presented background material to the committee and recommended a program of cooperation, regulation, and increased public ownership, aimed at solving such pressing problems as rural poverty and unemployment in depleted forest regions and creating added security for families, communities, industry, and labor through forest restoration.

"Public cooperation and aid to private owners of forest land should be continued and increased by the States and by the Federal Government," Earle H. Clapp, Acting Chief of the Forest Service, stated. "And private owners also should cooperate by putting into effect on their own lands reasonable forest practices under adequate public controls."

Included in the recommendations was a plan for public regulation of cutting practices on privately owned forest land. The states under this plan would be encouraged to enact and apply the necessary regulatory legislation during the next five to seven years. The Federal Government would contribute half of the cost of such state administration, but would withdraw its financial assistance if state legislation and enforcement should prove unsatisfactory. If necessary, enforcement would be administered by the Federal Government which also would have discretionary authority to withhold other forest cooperative funds (such as those now available for fire control) from states that did not satisfactorily administer or cooperate in regulation. Silvicultural and other measures would be adapted to and vary with local conditions. Forest land owners would help formulate specific requirements and could appeal for review and reconsideration of any that did not meet with their approval.

Another recommendation was for extension of public ownership and management—Federal, state, and community—to certain private forest lands where public interests were predominant (such as critical watershed areas), to key tracts that could be restored to productivity and permanent forest economy only through public action, and to lands incapable of sustaining a profitable private enterprise. The plan contemplates government purchase of privately owned land in such cases.

COMMUNITY FORESTS

With 67 new community forests established in 1940, forests owned by villages, cities, counties, schools, churches, hospitals, and other community organizations now total about 8,000,000 acres, representing more than 1,500 community-owned forest properties. Most of these serve combined purposes of watershed protection, recreation, wildlife habitat, production of local supplies of timber, and opportunities for unemployment relief, and many of them bring in a financial return from timber sales or other uses, in some cases a profit over costs of management that helps to pay for other community services.

PRAIRIE STATES FORESTRY PROJECT

More than 39,000,000 trees and shrubs were planted in the Prairie States during the year ended June 30, 1940. Since 1935, 14,250 miles of shelterbelts with 165,000,000 trees have been established to help protect cultivated crops on 23,000 farms. The planting is done by the U.S. Forest Service in cooperation with the farm owners to establish protective strips of trees at right angles to prevailing winds on the wheat, corn, and cotton farms of the Dakotas, Nebraska, Kansas, Oklahoma, and Texas. Forestry experts state that, on some 180,000 treeless farms in the Prairie region which would benefit by windbreaks, tree belts could easily be established; but on 300,000 additional farms, which likewise would be improved by windbreaks, tree growing presents such a difficult problem that continued research is necessary for its solution.

NEW ENGLAND FOREST EMERGENCY WORK

Since the hurricane struck New England in 1938 and laid low vast quantities of merchantable timber, the Northeastern Timber Salvage Administration, administered by the U.S. Forest Service, has accepted delivery of and paid for 657,691,000 feet, board measure, of logs and 59,400 cords of pulpwood salvaged through some 13,500 purchase agreements. To June 30, 1940, it made payments for salvage timber amounting to $8,087,300.

Salvage and emergency fire prevention operations in New England have now passed their peak. Some 560 miles of telephone lines within public forests were rebuilt, 9,358 miles of forest roads and trails were reopened, 64.502 acres of hazardous blowdown around buildings and communities were cleared, 82,498 acres of roadside debris were cleaned up, and 61,194 acres of clean-up were done in interior areas where the fire hazard was high.

The marketing of salvaged timber was well under way also. Probably the biggest single lumber sale in history was made when 425,000,000 board feet of salvaged softwood timber were sold to the Eastern Pine Sales Corporation in September, 1940. This lumber, the equivalent of about 21,000 carloads, will be marketed over a period of 4¼ years and prices paid the Government will be adjusted every 90 days to the lumber's actual market value. Farmers and others whose timberlands were damaged by the hurricane will be paid any surplus after liquidation of the Government's investment. Additional sales of salvage timber, mainly to local industries, totaled over $1,600,000.

NATIONAL FORESTS

Area.—There was a slight increase in the area of the 158 national forests during 1940, through purchases, exchanges, and donations. The area under Forest Service administration at the close of the last fiscal year was 176,494,066 acres. Measures were taken to turn certain suitable national forest areas over to the War Department for military reservations. Their total area will probably exceed 500,000 acres.

Timber.—More national forest timber was harvested during the 12 months ended June 30, 1940, than in any one previous year. In all, 27,572 sales of timber and timber products were made, with stumpage involved equivalent to 1,779,209,000 feet, board measure. Receipts for sales of timber, forest products, and as settlement for timber trespasses, totaled $3,943,032. The equivalent of about 325,600,000 feet of timber, including dead and down trees, was given away, mostly to farmers and to people living in or near the forests, for posts, fuelwood, shingles, etc.

Plantings.—With Civilian Conservation Corps' help, 131,892 acres of national forest land were planted during the calendar year 1939, bringing the total area reforested to 920,000 acres. More than 3,000,000 acres of denuded land in the national forests still need planting to restore the land to productivity. The Forest Service operates 27 tree nurseries which, in 1939, furnished 132,668,000 trees for planting on national forests and 4,214,000 trees for use by other Federal agencies.

Game and Stock.—Big game population on the national forests in 1940 was estimated at 1,930,000 deer, elk, antelope, moose, bighorn sheep, mountain goats, and bears; fur bearers were estimated at 4,340,000. Forest officers planted almost 289,000,000 fish in national forest waters which include upwards of 70,000 miles of streams, and thousands of lakes and ponds. Domestic animals to the number of 6,537,029, not counting the young stock, were grazed in the national forests in 1939, under free and paid permits.

Recreation.—Estimates indicated that more than 34,000,000 people visited the national forests last year for recreation purposes, including 20,471,000 motorists and sightseers, and 14,332,000 who stopped to camp, picnic, swim, fish, hunt, hike, or ride during the summer and fall, or to ski, skate, and snowshoe during the winter. Twenty-five camps for low-income groups, where food, lodgings, and transportation average four to five dollars a person a week, have been established recently on the national forests. The recent boom in skiing resulted in more than 1,250,000 visits to winter sports areas recently developed in the national forests. Descriptive of this public recreational use *Forest Outings,* a book on recreation in the national forests, was published by the Forest Service during the year.

Fire Prevention.—Despite increased efforts in fire prevention and suppression by the Forest Service, the record of man-caused fires in 1939 was unfavorable as compared with 1938. Man-caused fires increased by 717 to a total of 8,555. Including the area burned by 7,269 lightning fires (1,567 more than in 1938) the 355,930 acres burned over was greater by 137,000 acres. This increase in fires resulted from prolonged periods of drouth and low humidity in the western mountain areas where a large percentage of the national forests are located.

Disease and Pest Control.—The most damaging epidemics of tree-killing bark beetles in 1940 were in Idaho, Colorado, and Utah. Blister rust, a serious fungous disease of pines, continued to spread in the western white pine stands of northern Idaho, western Montana, and northeastern Washington and in the sugar pine region of California and Oregon. Control measures under way have covered only a fraction of the area affected.

XI. AGRICULTURE AND ALLIED INDUSTRIES

PERIODICAL PUBLICATIONS

Agricultural Education
1714 Locust Street, Des Moines, Ia.
Agricultural Engineering
American Society of Agricultural Engineers, St. Joseph, Mich.
American Agriculturist
Savings Bank Bldg., Ithaca, N.Y.
American Forests
American Forestry Association, 919 Seventeenth St. N.W., Washington, D.C.
American Fruit Grower
1370 Ontario Street, Cleveland, O.
Country Gentleman
Curtis Publishing Company, Independence Square, Philadelphia.
Cotton Trade Journal
810 Union Street, New Orleans, La.
Dairy World
608 South Dearborn Street, Chicago.
Farm Journal
Farm Journal Inc., Washington Square, Philadelphia.
Fishing Gazette
461 Eighth Ave., New York City.
Forestry News Digest
American Tree Association, Washington, D.C.
Hoard's Dairyman
Fort Atkinson, Wis.
Journal of Agricultural Research
Superintendent of Documents, Washington, D.C.
Journal of the American Society of Agronomy
Geneva, N.Y.
Journal of Dairy Science
Ohio State University, Columbus, Ohio
Journal of Farm Economics
American Farm Economic Association, Menasha, Wis.
Journal of Forestry
Society of American Foresters, Washington, D.C.
Pacific Fisherman
71 Columbia Street, Seattle, Wash.
Produce Guide
165 Duane Street, New York City.
Successful Farming
Meredith Publishing Company, Des Moines, Ia.
Wallace's Farmer and Iowa Homestead
1912 Grand Ave., Des Moines, Ia.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN ASSN. OF NURSERYMEN, P.O. Box 355, Louisiana, Mo.
AMERICAN COUNTRY LIFE ASSN., 297 Fourth Ave., New York City.
AMERICAN FARM BUREAU FEDERATION, 58 E. Washington St., Chicago, Ill.
AMERICAN FORESTRY ASSN., 919 Seventeenth St., N.W., Washington, D.C.
AMERICAN NATIONAL LIVESTOCK ASSN., 515 Cooper Bldg., Denver, Col.
AMERICAN ORNITHOLOGISTS' UNION, U.S. National Museum, Washington, D.C.
AMERICAN PHYTOPATHOLOGICAL SOCIETY, Bureau of Plant Industry, Washington, D.C.
AMERICAN POULTRY ASSN., Fort Wayne, Ind.
AMERICAN SOCIETY OF AGRONOMY, Agricultural Experiment Station, Morgantown, W.Va.
AMERICAN SOCIETY OF ANIMAL PRODUCTION, University of Nebraska, Lincoln, Neb.
AMERICAN SOCIETY OF EQUITY, 311 Daily Star Bldg, Minneapolis, Minn.
AMERICAN SOCIETY FOR HORTICULTURAL SCIENCE, Lock Box 299, Geneva, N.Y.
AMERICAN SOCIETY OF MAMMALOGISTS, College Station, Texas.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

American Veterinary Medical Assn., 221 N. La Salle St., Chicago, Ill.

Association of Land-Grant Colleges and Universities, c.o. Experiment Station, Lexington, Ky.

Boyce-Thompson Institute for Plant Research Inc., 1086 N. Broadway, Yonkers, N.Y.

Dairymen's League Co-operative Association, Inc., 11 W. 42nd St., New York City.

Farm Women's National Congress, Clarksville, Ia.

Institute of American Meat Packers, 509 S. Wabash Ave., Chicago, Ill.

International Farm Congress of America, Continental Bldg., Kansas City, Mo.

Izaak Walton League of America, Merchandise Mart, Chicago, Ill.

Jewish Agriculture Society, Inc., 301 E. 14th St., New York City.

Middle Atlantic Fisheries Assn. Inc., 203 Front St., New York City.

National Assn. of Audubon Societies, 1006 Fifth Ave., New York City.

National Board of Farm Organizations, 1731 I St., N.W., Washington, D.C.

National Dairy Council, 111 N. Canal St., Chicago, Ill.

National Educational and Co-operative Farmers' Union of America, 1731 I St., N.W., Washington, D.C.

National Fertilizer Assn., 676 Investment Bldg., Washington, D.C.

National Grange, 970 College Ave., Columbus, O.

National Highways Association, Bass River, Cape Cod, Mass.

National Livestock and Meat Board, 407 S. Dearborn St., Chicago, Ill.

National Poultry Council, Davisville, R.I.

People's Lobby, Inc., The, Burchell Bldg., N.W., Washington, D.C.

Society of American Florists and Ornamental Horticulturists, Inc., Stevens Hotel, Chicago, Ill.

Society of American Foresters, 825 Hill Bldg., Washington, D.C.

United States Livestock Sanitary Assn., 33 Livestock Exchange Bldg., Wichita, Kan.

Vegetable Growers' Assn. of America, c.o. F. L. Allen Co., Philadelphia, Pa.

Women's National Farm and Garden Assn., Inc., Amber, Pa.

DIVISION XII

MINERAL INDUSTRIES

GOLD AND SILVER

By Arthur Notman

Mining Engineer and Geologist, New York

GOLD

The uncertainties with regard to Russia's output of gold still persist. It seems doubtful whether that country produced more than 5,000,000 ounces in 1940. However, new records were made for the world for South Africa, for the United States including the Philippine Islands, and for Canada. The British Empire is now producing at the rate of about 23,500,000 ounces per annum. Of this total, about 14,000,000 ounces comes from the Dominion of South Africa, about 1,875,000 ounces from British Colonies in Africa, about 5,200,000 ounces from Canada, about 2,000,000 from Australia, New Zealand, and New Guinea, and 320,000 ounces from British India.

GOLD

(Fine Ounces)

	World Production Ex Russia	United States	% of World
1929	18,488,487	2,208,368	11.9%
1939	34,462,571	5,559,139	16.1%
1940 (Est.)	36,875,000	6,001,000	16.3%

With the United States they account for 75 per cent of the world's total. Together with Russia, they produce nearly ⅞ths of the total. We now hold in this country about 630,000,000 ounces. If production from the British Empire and the United States continues at the present rates in 40 years, the former will produce as much gold as we now have above ground plus what the United States will produce in that period. South Africa has been producing for 54 years and Canada has been producing actually for 31 years. Both areas made new records in 1940. There is nothing in the development in either area to suggest that they have reached their ultimate peaks. It is, therefore, evident that, while their future production may not maintain the present rate for the next 40 years, at least the British Empire's stake in gold is of the same order of magnitude as that of the United States, and that she will take no action designed to destroy the value of gold even if she could. It is equally obvious that if Hitler defeats the British Empire and takes over Africa, he is not going to close down the gold mines, no matter what he now says about the worthlessness of the metal.

In addition to the production of the United States and the British Empire, U. S. and British capital controls a substantial portion of the balance in Mexico, Central and South America, and other areas. This would probably account for another 5 per cent of the world's total.

The following table and remarks, prepared by the writer two years ago and published in the May, 1939 issue of *Mining and Metallurgy* will afford some idea of the relative unimportance of gold mining as an industry in the world economy.

GOLD OUTPUT AND DIVIDEND STATISTICS

Number of Mining Companies		1938 Ore Tonnage	Market Value of Outstanding Securities March 15, 1939	Dividends Paid 1938	Per Cent Yield on March 15, 1939 Value	Ounces Gold Produced
South Africa....	37	53,834,150	$1,126,463,000	$84,142,142	7.47	11,839,077
Canada.........	40	10,528,068	534,228,000	38,663,968	7.23	3,211,300
Others..........	29	10,856,511	446,103,000	30,863,785	6.92	2,520,274
Totals....	106	75,218,729	$2,152,974,000	$153,669,895	7.14	17,570,651

Note: (1) The average London gold price has been taken at 140 shillings per ounce and exchange at one pound equals $4.70 for the market value of outstanding securities, but at $4.89, the average exchange rate for 1938, in calculating dividends paid in sterling. (2) Duplications in market values and dividend disbursements due to interlocking ownerships have been eliminated.

This group accounted for about 55 per cent of the total for the world aside from Russia in 1938. Measured in value of product, of securities, or of income, gold mining is a relatively small undertaking compared with any of the really important world industries. In fact the market value of the outstanding stock and bonds of the American Telephone and Telegraph Co., which in March, 1939 stood at about $3,400,000,000, exceeds the market value of all the straight gold producing mines in the world today. Gold derives its importance and value from its fourfold function: (a) as a measure of value; (b) as a means of payment; (c) as a medium for the storage or conservation of value; and (d) as a medium for the settlement of international balances. It also furnishes, in so far as the statutes of governments will permit, insurance against the dishonesties of politicians and governments.

SILVER

The silver production was exceeded only in the year 1937, when according to the American Bureau of Metal Statistics, the total world output of new metal was 275,645,045 fine ounces. In the United States, approximately 50 per cent of the production is derived as a by-product from the treatment of base metal ores of copper, lead, zinc, etc.

SILVER

(Fine Ounces)

	World Production Ex Russia	United States	% of World
1929......	262,804,711	60,180,000	22.9%
1939......	258,917,744	57,808,000	22.3%
1940 (Est.).	268,000,000	65,000,000	24.2%

In the rest of the world, this proportion of by-product silver is substantially greater, probably as high as 75 per cent. The domestic figures are distorted by the production of the Sunshine, Polaris, and other producers of straight silver ores in the "Silver Belt" of the Coeur d'Alene district of northern Idaho. It follows, therefore, that the production of silver varies with the demand for the base metals. The present domestic price of 71¢/oz. enables the domestic base metal producers to operate profitably at a lower price level than they could without this premium on silver. To this extent at least the domestic consumers of the base metals are benefited. It seems doubtful whether even the war demand for the base metals will boost the production much beyond the 1937 figures cited above.

XII. MINERAL INDUSTRIES

IRON AND STEEL

By Edwin F. Cone

Editor, *Metals and Alloys*

GENERAL

The high note of optimism with which the year 1939 ended, noted in this report a year ago, bore cumulative fruit in 1940. The most important records in production in the iron and steel industry were broken, and the year ended with output of steel ingots at the highest rate of capacity on record. The cause of this unprecedented "prosperity" is of course the preparedness and defense program of the United States Government as well also as aid for Great Britain.

By the end of 1940 steel ingot production was at the rate of close to 95 per cent of capacity, and by the week of Jan. 20, 1941 it was over 99 per cent. In the first quarter of 1940 the tempo was 72.6 per cent of ingot capacity; in the second, 72.7 per cent; in the third, 87.9 per cent, and in the last quarter 95.49 per cent. The year's average was about 82 per cent.

STEEL AND PIG IRON PRODUCTION

Complete data of the steel and pig iron production for 1940 are not available until later in 1941. Estimates which are reliable place the total at over 66,500,000 net tons of steel ingots, which is fully 8 per cent above the best previous record of 61,400,000 tons in 1929 and about 27 per cent over the 1939 output of 52,500,000 tons. It should be noted here that in these data net tons and not gross tons are used. During 1940 the American Iron and Steel Institute as well as some other authorities changed their data from a gross to a net ton basis.

An interesting fact is that the steel making capacity of the industry at the close of 1939 was about 81,000,000 net tons of ingots per year. This was 15 per cent greater than could be produced with the equipment available on Dec. 31, 1929, and revealed a gain of 38 per cent over that at the end of 1918. The rated capacity at the end of 1940 was about 83,000,000 tons with the practical working capacity approximately 85,000,000 tons, according to the American Iron and Steel Institute.

The estimated pig iron and ferroalloys production for 1940 was about 47,500,000 net tons, an increase of about 33 per cent over the 35,677,097 tons for 1939. The 1940 output is not a record but is not far from the 47,727,661 tons made in 1929. These are also the data of the American Iron and Steel Institute. The 1940 total was the highest since 1929.

PIG IRON AND STEEL OUTPUT IN NET TONS

Year	Pig Iron	Steel
1940	66,500,000*	66,500,000*
1939	35,677,097	52,798,714
1938	21,460,164	31,751,990
1937	41,582,550	56,636,945
1936	34,752,689	53,499,999
1935	23,937,423	38,183,705
1934	18,075,202	29,181,924
1933	14,947,074	26,020,229
1932	9,835,227	15,322,901
1931	20,637,516	29,058,961
1930	35,562,429	45,583,421
1929	47,727,661	63,205,490
1925	41,104,634	50,840,747
1920	41,357,105	47,188,886

* Estimated.

ALLOY STEELS

There is always keen interest in the trend of the alloy steel industry but data as to actual production are not available until late in the year. Information concerning 1939 is published, and this is reviewed here. The trend has been upward as usual and 1939 was no exception. A substantial total was made in that year at 3,211,953 net tons which was 6.08 per cent of the total steel production, the highest percentage since 1935.

The following table, based on official data of the American Iron and Steel Institute, shows the trend in recent years in net tons:

Year	Total Alloy Steel	Per Cent of Total Steel
1929	4,432,072	7.01
1930	2,736,508	6.00
1931	1,630,623	5.62
1932	894,436	5.83
1933	1,732,845	6.65
1934	1,805,748	6.18
1935	2,374,017	6.21
1936	3,229,657	6.04
1937	3,396,541	6.00
1938	1,653,510	5.21
1939	3,211,955	6.08

While no new records were made in 1939, the pace of the last few years was maintained. Without doubt the showing for 1940 will shine by comparison with recent years, and all records may have been broken.

STAINLESS STEELS

A new record in the total production of stainless steels was made in 1939, according to the Institute's records. The record, since data were collected and published, is as follows:

Year	Total Net Tons
1934	55,905
1935	73,580
1936	101,882
1937	156,618
1938	95,954
1939	179,620

The 1939 output of 179,620 tons was the largest on record and exceeded by 14.7 per cent the next largest or 156,618 tons in 1937. Again without doubt the 1940 record will reveal a decided increase and a new high.

An interesting fact is that, since all stainless steels are made in electric furnaces, the 1939 total of 179,620 tons was 17.4 per cent of the total electric steel output—a new record.

ELECTRIC STEEL

A decided upturn in the electric steel industry took place in 1940. There was the announcement of the construction of 21 new furnaces, most of which were already operating by the end of the year or were to be in operation early in 1941. Total capacity of the added furnaces is estimated at not less than 900,000 net tons of steel ingots per year. Addition of the new electric furnaces will increase the industry's electric steel furnace capacity by about 50 per cent. This means a total capacity at the end of 1940 of about 2,750,000 net tons annually. Total electric steel output in 1939 was 1,029,067 net tons, the next highest ever recorded. It was also 1.95 per cent of the country's total steel production, also a new high. It is also of interest to record that the percentage of alloy steels made in electric furnaces of the total steel output in 1939 at 23 per cent was a new high. In 1938 it was 22.5 per cent.

STRATEGIC MATERIALS

One of the most important subjects of vital interest to the steel and metal working industries of the country in 1940 was the question of strategic materials or metals—essential materials in the production of defense equipment which are not produced in the United States in sufficient quantity and hence have to be imported. These materials are manganese, chromium, nickel, tungsten, antimony, tin, and mercury. Early in the year active steps were taken by the Government to safeguard this situation, and in some cases stock piles were accumulated against a possible shortage. Manganese is one of the most essential because steel can not be made without it. Most of the manganese used in this country is imported. A complete review of this subject was published in the October 1940 issue of *Metals and Alloys*.

EXPORTS AND IMPORTS

The European War has so dislocated normal interchange of goods that data on the exports or imports of iron and steel are not of much interest or significance. The latest data, as of Dec. 1, 1940, showed that exports of iron and steel were far below the totals recorded in the same period in 1939. Great Britain led the procession naturally. Scrap iron and steel exports have also declined severely, due partly to restrictions on quantities going to Japan. As might be expected, imports fell off severely, the total to Dec. 1, 1940 having been only 53,239 tons as compared with 300,552 to Dec. 1, 1939.

THE OUTLOOK FOR THE INDUSTRY

What 1941 and after have in store for the steel industry is difficult to forecast. Much depends on the course of the war. But whether this should end early in 1941 or not, the defense or rearmament program of the Government, pursued to its logical conclusion, means full time operations for most branches of the American steel industry. The prospects now are that in 1941 new records will be attained.

COAL AND COKE

By R. Dawson Hall

Engineering Editor, *Coal Age*

GENERAL

Few years have shown so consistent a production of bituminous coal as 1940, the best year for the industry since 1930, 50,000,000 tons better than 1939, 100,000,000 than 1938. Purchases of coal by consumers who knew that the Bituminous Coal Division would soon establish minimum prices stimulated buying and so ironed out the usual summer slump.

By the time the market for coal was due to feel the boosting action of winter demands and the greater industrial activity due to the defense program, higher prices were imposed by the Division. Then, for a while, production lagged behind the season's normally high figures, never, however, getting below 8,000,000 tons weekly, about the weekly average for the year, but even this little sag in the market did not last long. At the end of the year, production was distinctly higher than in the same period in 1939, and the entire production of the 12-month period was 453,000,000 tons or about 14.4 per cent more than in the previous year.

Thus, with sustained production and higher prices, the immediate future appears promising provided always that the regrettable war continues, oil makes no inroads on coal, and the life of the National Bituminous Coal Act is extended beyond April 26, 1941, when its existence will end unless Congress acts. It must be recalled that the present wage contract will expire April 1 and a suspension of operations may then occur.

COKE

Beehive-coke production rose 108.9 per cent in 1940 to 2,400,000 tons. After years of disuse, old dilapidated beehive ovens have been reconstructed, some in places where, mines no longer existing, the ubiquitous truck has to bring coal to them. Materials for such repair are easily and promptly obtained.

Needless to say, byproduct ovens had a busy year in 1940, though production of such coke can not be boosted much unless more ovens are built—a slow and costly procedure. In contrast, in a month a row of idle beehive ovens can be rehabilitated, producing good coke.

In sharp contrast to coke and bituminous coal, the output of anthracite in 1940 fell 3.7 per cent to 50,000,000 tons. Demand for coke for industrial purposes is constricting the supply of domestic coke and in the presence of increased demand for oil and gas will develop a demand for coal of the sizes used in domestic stokers.

PRICE STABILIZATION

Attacks in the courts on the coal act continued in 1940 but the Supreme Court finally decided on May 20 against the principal appellant, the Sunshine Anthracite Coal Co., by a majority of eight to one. On March 23, definite minimum price schedules and market areas were recommended by the three trial examiners, the areas being deliminated in accord with figures of 1937, that being the most nearly representative year.

For the entire country, these prices were such as would yield an average estimated mine return per ton of $2.072 with an average mine cost of $2.088. This is 11¢ per ton above the average mine return per ton in 1937 but 1.6¢ below the weighted average cost of production.

Finally, on Oct. 1, bituminous minimum prices became effective. Schedules cover 1,148 pages. Minor modifications have been made where prices were believed to work an injustice but, on the whole, little complaint has been heard either from producers or consumers. Companies with favoring conditions are disposed to ask that they be permitted to sell at a lower price so that they can get a larger market. Also, every producer makes inevitably many sizes and seeks prices that will enable him to move all his sizes in the percentage in which they are produced, so that there will be no waste and no coal will have to be broken down to less profitable dimensions.

ANTHRACITE CONTROL

The voluntary allocation plan drawn up by seven old-line Pennsylvania-anthracite producers and practically all the independents, and approved by Governor A. H. James on Jan. 23, went into effect Feb. 9 when the "executive group", the late J. I. Thomas, State Secretary of Mines, Frank Earnest, Jr., president, Anthracite Industries, and M. F. Brennan, president, United Mine Workers, were appointed by Governor, operators, and mine workers respectively.

Some criticism of the plan has been expressed because some independents are asserted to be exceeding their allocations, but the plan is still operative. Proposals have been made that additional tonnage be allotted to operators who will absorb the 3,500 bootleggers formerly employed as miners, but this, it is said, would increase, at the expense of the others, the tonnage of companies whose irregular operation caused these men to become bootleggers. In all there are 9,000 of these outlaw producers.

MINE DISASTERS

Fear has been expressed that, with new forms of mechanization, may come an increase in the number of disastrous explosions, such as synchronized with the introduction of mechanical cutting, though deeper mines and a greater volume of methane partly explained the disasters of the first decade of the century. Particularly disturbing is the dust made and raised by the rubber tires of shuttle cars. None of the disasters of the present year, however, has been directly related to such equipment. On Jan. 10, an explosion occurred in a "wireless" rock-dusted mine, Bartley No. 1, of the Pond Creek Pocahontas Coal Co., Bartley, W.Va., in which 72 men were killed. According to the U. S. Bureau of Mines, this was due to the ignition of methane by an electric arc. The permissible machines, it added, were not in permissible condition, and unauthorized men spliced cables while power was on the lines.

Another explosion occurred, Mar. 16, at the Willow Grove Mine of the Hanna Coal Co. of Ohio at Neffs, killing 72 men. The Bureau of Mines, in a report released April 1, labeled it a dust explosion in which methane may have been involved and said that black pellet powder stemmed with coal dust caused the explosion, that the machines were not of a type designated as "permissible" by the Bureau, and that cars were hauled in return air. Coal dust was present and possibly gas.

A third explosion occurred at the Sonman Shaft, Koppers Coal Co., Sonman, Pa., taking 63 lives, probably in all cases from afterdamp poisoning, according to a report of the Bureau of Mines Sept. 2, which declared that the explosion was due to ventilation carrying methane to the trolley wires where an electric locomotive was operating. Few, if any, were killed by burns or violence. A fourth occurred at the Nelms mine of the Ohio & Pennsylvania Coal Co. near Cadiz, O., in which 31 men were killed.

SMOKE ABATEMENT

In 1940, St. Louis, Louisville, Ky., Birmingham, Ala., and Atlanta have been active in smoke prevention. On April 5, the Board of Aldermen of St. Louis passed an ordinance requiring exclusive use of smokeless fuel or mechanical firing equipment that will burn fuel smokelessly. The city was empowered to buy smokeless fuel and distribute it to consumers if adequate supplies could not be obtained in the market.

Arrangements were made to get low-volatile coal from Arkansas, and in the summer the Interstate Commerce Commission set a train-load rate on coal of $2.75 per ton from the Arkansas-Oklahoma semi-anthracite district to St. Louis. In June, Governor Horner of Illinois signed a bill authorizing counties to construct plants to process Illinois coal into a smokeless fuel.

Meanwhile, Aug. 24, a group of 20 Curran-Knowles ovens came into production at Millstadt, Ill., processing 350 tons of coal in 24 hours and producing about 200 tons of semi-coke, 1,250,000 cubic feet of surplus gas (about 55 per cent of the total product), and 4,200 gallons of tar, and Southern Illinois Coals, Inc. appointed a specialist to meet the complaints against the coals of the state. At about the same time, the Progressive Mine Workers at Springfield voted not to buy from those who discriminate against Illinois coals.

In the spring, the State of Illinois ordered the erection of a $78,140 laboratory, to be erected at the University of Illinois, Urbana to complete experiments in the development of a smokeless briquet. This project, for which $180,000 was provided, has been built and was dedicated Nov. 15 to the study of the smokeless combustion of Illinois coals. This same "smokeless hand firing of coal" and "completely automatic residence heating" are the two leading projects of Bituminous Coal Research of the National Coal Association in its announced program of June 23.

SHUTTLE CARS

No technical advance was more marked in 1940 than the progress in the use of shuttle cars, those trackless storage-battery trucks that travel between loading machine and underground rail heads, but this was no less true of 1939. In November, it was stated that 250 of them were in operation working in seams from 32 inches to 14 feet thick with capacities ranging from three to 12½ tons with savings alleged to range from 14¢ to 33¢ per ton over car haulage of the same type (these economies have been contested). Should these sub-surface roads become boggy, other equally direct courses may be substituted. Removal of tracks from the face naturally makes cutters, drills, and compressors more readily mobile.

In 1940 the Princeton Mining Co. installed six drop-bottom shuttle cars each 7 feet 6½ inches wide, 40 inches high and 15 feet long with three doors. Each car weighs three tons and holds nine tons of coal. But all-conveyor-loader operation is an able-bodied rival of the shuttle car. In southern Illinois as much as 33.3 tons per man-shift underground has been recorded with such operation.

MINE LAYOUTS

Lengthy equipment, coal cutters, loaders, and cars are making it advisable to lay out mines with 60- instead of 90-deg. angles, so diamond-shaped pillars more and more have replaced square pillars. Speed in advancing workings has brought quite within reason the cost and feasibility of driving to the boundaries either of the property or of a panel before developing coal to the sides of the entries. Consequently, this practice is becoming more frequent.

Years back, a heading and its return airway constituted an entry, even in thick coal. The greater distances to be traversed, the larger tonnages to be produced, and the bulky equipment which almost closed the headings to air made the driving of more headings in an entry necessary for ventilation, but now the desire to obtain tonnage on the advance and the need for a number of workings advancing concurrently to get such a tonnage is making managers drive even more headings than ventilation or needs for haulage might justify.

It is true hand loading still continues, sometimes onto conveyors and pit-car loaders, but also recently into what are known as "scooters", which are wheelless boxes shaped like a scraper but with a bottom having two doors overlapping at the center. These scooters are dragged along the floor of the seam from face to heading roadway where the doors open automatically and drop the coal into a car.

Such equipment is being used at Cranberry No. 1 mine of the New River Co., the Rita mine of the Leckie interests in West Virginia, and in the Jodie and Ansted mines of the Gauley Mountain Coal Co., Aflex, Ky. The first mentioned scooters measure horizontally 4 x 5 ft. and are 12-in. high. They can be used in low or pinching coal and are favored because they do not break the coal they transport or scrape up the mine floor.

MAIN-LINE TRANSPORTATION

Another recent development is greater speed in main-line transportation, for which the underground roads can be made unusually well fitted; no fills, no snow, no track expansion, no stray animals, no overbalancing car heights, as on railroads, but there is danger of fallen rock into which a trip might run. Speeds of 30 and 35 miles are now occasionally reached, and runs of five or seven miles are not uncommon.

For speedy transportation, the Republic Steel Co. is using, among others, 298 five-ton cars with spring couplers and two cars in which the springs are replaced by rubber pads absorbing 50,000 lb. on compression and 25,000 lb. during draft with only ½-in. compression of the rubber. All the cars are coupled automatically but, unlike railroad cars, can be so coupled on sharp curves. Ten-ton cars have been installed by the Rochester & Pittsburgh Coal Co., in Pennsylvania, with double-knee action swivel trucks and automatic couplers. These cars are half as heavy as those of standard construction.

REMOVING BACKFILLED PILLARS

In those anthracite mines in which workings have been closely backfilled, old pillars have been mined hitherto by hand, using the compacted material as pillars to support the roof. But now, as at the Jermyn-Green Coal Co.'s No. 14 Colliery where backfilling had been performed most ineffectively, pillars have nevertheless been withdrawn by hand, by loading the deposited slush onto belt conveyors, and removing this slush into unfilled gobs by plowing off the material by a board. The pillars were then drawn on retreat by these conveyors, producing 11 tons per man-shift. Some work was done by driving skips up one side of the pillars and then removing pillars on retreat but only eight tons per man shift resulted from this manner of working, and more coal had to be left in the workings.

ROOF CONTROL

In No. 4 mine, Madrid, Ia., which has been greatly troubled by squeezes, the Scandia Coal Co. has found that, by drilling holes along the pillar lines, eight feet long on 12-foot centers and by drilling the roof along the faces and shooting these holes, it can break the roof and prevent squeezes. Shooting of the charges is left until the room pillars have been slabbed so that for the most part ribs only six feet wide remain.

SHOOTING

For some years, the carbon-dioxide shell as a means of breaking down coal has been hampered seriously in Illinois by the opinion that its use while men are in the mine is illegal. The State Attorney-General so ruled on March 1, but on Sept. 11 he reversed that ruling, as the heating element in the shell weighs less than half a pound and the shotfirers' act makes the absence of miners obligatory only when more than one pound of explosive is used. Regulations of the Utah Industrial Commission governing use of sheathed powder in the coal mines of that State became effective on May 4.

At the New Monarch mine of the Consolidated Coal Co., Herrin, Ill., coal is brought down by drilling two holes, seven feet long, and one, four feet long, and all of 5½-in. diameter and placing in each hole a tube of synthetic rubber into which is pumped an oil of low flammability at a pressure of 2,000 pounds per square inch. The tube expands from 4¾ inches to 7½ inches diameter. This forces down the coal with minimum breakage.

Other improvements are hydraulic braking for locomotives and the use of explosives to punch ¾-in. holes in the rails of 40-lb. mine track, 25 holes having been punched in a minute. Liquids that destroy the surface tension of water have been used with water in the spraying of cutter bars and the coal face, and to drench piles of coal near the face, coal being loaded into cars and tops of loaded coal trips. Such water wets the coal more readily than natural water. Experiments in the Experimental Mine showed that, when dried, the coal, though lightly caked at the top, was no better protected against an explosion than when it had been wetted by normal water. Experiments will continue with rock dust distributed over the dampened coal. The Koppers Coal Co. has found that three quarts of spray made of one part wetting agent to 100 parts of water will wet a ton of coal.

STRIPPING

Longer booms on shovels and draglines are becoming necessary with deep overburden, especially in the anthracite region, and booms of 200 feet and even 215 feet length are being incorporated on dragline excavators. During the year a shovel with a 35-cu. yd. dipper was installed by the Tecumseh Coal Corporation for its stripping at Dickeyville, Ind. This dipper, the largest in the world, can lift 50 tons of overburden and carry it over a seven-story building. This shovel has 23 motors ranging from one to 1,150 hp. The dipper itself weighs as much as a 1½-cu. yd. shovel. Its maximum cutting and dumping radius is 113 ft. But more significant perhaps is its new construction. The "crowding" mechanism, which pushes the bucket into its load, has been taken off the boom, and the stress of crowding is imposed by a knee action on the gantry, thus leaving to the boom only the task of carrying point sheaves and relieving the over-stressed boom from the stresses and shocks of crowding, so that it can be built lighter or will permit the use of even larger dippers and greater working ranges. If this claim is substantiated, the shovel industry now is no longer approaching a size limit. The crawlers in this shovel swivel independently, longitudinally and transversely, and the base plate is leveled by an electric eye.

With shovels, the economic limit for stripping has been about 50 feet of cover, though more has been removed in some instances, especially where, because of a steep hill slope, there was place to put the spoil, but at the Bobolink strip pit, Seelyville, Ind., of the Binkley Mining Co., the cover along the boundary was 60 to 70 feet thick, so that even the 105-foot boom and 72-foot dipper stick of the 30-cu.yd. shovel could not handle it. In consequence, the topmost overburden is being hydraulicked down to hard pan, 10 to 20 feet below the surface, and pumped a half mile to a pond formed in the strip pit where the water is pumped up so that it will flow back to the hydraulicking pumps.

However, in some other cases, this difficulty of excessive depth of cover has been solved by operating shovels in tandem, a short-range shovel with a large dipper being followed by a long-range shovel with a smaller dipper. For hauling coal, the Tecumseh Coal Corporation is using six tractor trailers each of 50 tons capacity weighing 30 tons apiece.

Truck mines are getting to be of large capacity and are being equipped in some cases with the most modern machinery, not excluding shuttle cars. The totally inclosed controller boxes of mining machines corrode metal parts and disintegrate insulation rapidly, for the arcs combine oxygen and nitrogen to form nitric acid. A small fan of 0.02 hp. is now used to force air through the controller boxes to sweep out the acid, and protection against explosion, where air enters and leaves, is afforded by labyrinths so narrow and cooling that flame can not pass.

TECHNICAL MINING EDUCATION

Technical education for almost all employees is foreshadowed by developments in 1940 and recent years. In 1939, 2,000 students were enrolled in 100 classes in 75 Pennsylvania centers; two full-time supervisors and 100 part-time instructors were employed in a course covering three years of 33 to 36 weeks of instruction. West Virginia had 52 classes and 1,737 students and nine full-time and three part-time instructors. In Ohio, ten classes with 350 students were taught by two full-time lecturers.

NEW USES FOR COAL PRODUCTS

Tests made at the Mellon Institute have shown that a stream of air or steam will break a pencil of molten coal ash or refuse into a mass of fine threads, thereby making rock-wool heat insulation. A flux, like limestone, frequently may have to be added to fluidify the ashy material. Use of anthracite in cupolas is under trial by The Hudson Coal Co.

Tests are being made for Anthracite Industries, Inc. by Pennsylvania State College in the preparation of coal to act as an activated carbon, and the U. S. Bureau of Mines also is interested. Studies will be made at the former institution into the possibility of further activating the surfaces of coal. Possibilities of coal-oil mixtures (colloidal fuels) are being studied at Kansas State College.

Tests by G. B. Gould have shown that standard tests of the average softening temperature of a sample of coal ash fail to represent what would happen to the ash of any individual piece of coal, because such piece might have an analysis entirely different from that of the average sample. A coal, the ash of which in bulk softened at 2,700 deg. F., had 24.3 per cent of its bulk with an ash having an initial deformation temperature under 2,200 deg. F. and 65 per cent with an ash having an i.d.t. at or over 2,800 deg. F. Hence, a bulk sample will not show whether a coal will clinker.

All tests of clinkering are based on results with a reducing atmosphere, but it must be recognized that today the coal may burn in an oxidizing stream of air, making erratic all the softening temperatures ascertained by standard methods. This disconcerting fact is being studied by E. G. Bailey for the Babcock & Wilcox Co. Tests have been made at Pennsylvania State College to determine the friability of anthracite under thermal and dynamic stresses as a means of ascertaining the size of coal best suited for use in gas manufacture.

XII. MINERAL INDUSTRIES

NON-FERROUS METALS

By Arthur Notman

Mining Engineer and Geologist, New York

WORLD PRODUCTION

Although official statistics on the production of the three major non-ferrous metals outside of the United States and Canada are not available, it would appear that a new peak was reached in 1940 for the world total at about 6,400,000 short tons. The previous peak was 6,232,671 tons in 1937. The pre-depression peak in 1929 was 5,679,442 tons.

Copper*

	World	United States	United States % of Total
1929	2,127,000	1,026,348	48.2
1937	2,503,966	834,835	33.3
1940 (Estimated)	2,650,000	992,000	37.4

Lead*

1929	1,931,544	688,000	35.6
1937	1,895,491	469,892	24.8
1940 (Estimated)	1,950,000	476,000	24.4

Zinc*

1929	1,620,898	631,600	38.9
1937	1,838,487	589,619	32.1
1940 (Estimated)	1,900,000	590,000	31.6

* Short tons.

The U. S. figures for 1940 are based on current reports of the American Bureau of Metal Statistics, Copper Institute and official reports of the Dominion of Canada and its provinces for the first 10 months. In estimating world figures, it is assumed that war needs have brought out a production at least equal to 1937. Figures for prior years are from the American Bureau of Metal Statistics.

ALUMINUM AND OTHER PRODUCTION

The tremendous demand for aluminum for airplanes for both commercial and military use has resulted in a rate of increase in production comparable only with that of copper in the early years of the evolution of the electrical industries. The latest available figures of the A.B.M.S. show world production in 1938 at 583,024 metric tons as compared with 489,830 in 1937 and 281,298 in 1929. In 1939 the U. S. and Canada produced 223,367 tons as compared with 196,129 tons in 1938, and 144,100 in 1929. It seems not unlikely that the 1940 world figures will exceed 700,000 tons, possibly 750,000 tons. Nickel production will also make a new high as well as tin. The newer ferro-alloy metals such as chromium, magnesium, molybdenum, vanadium, tungsten, cobalt, etc., will doubtless all show similar trends. Were it possible to compare the total non-ferrous metal production of 1929 including manganese with that of 1940 rather than of the three major metals only, a truer picture of the growth in the world's demand for metal would be obtained. A rough approximation might show total non-ferrous production in 1929 of 6,400,000 tons and in 1940, 8,450,000 tons.

It is a matter of great concern to the United States that, of these newer metals, there is no significant domestic production of chromium, nickel, manganese, tungsten. Tin also is lacking, although the United States consumes about half of the world's output. Their increasing importance in modern civilization and in national security are or should be weighty factors in our foreign policy. These deficiencies can all be supplied by trade with the British Empire.

PRICES OF MAJOR METALS

After 15 months of war in Europe and three years of war in Asia, prices of the three major non-ferrous metals in New York, according to the *Engineering and Mining Journal,* averaged for November, 1940, as follows:

Copper		Lead		Zinc
F.O.B. Refinery				
Domestic	Export	New York	St. Louis	St. Louis
11.800¢/lb.	10.084¢/lb.	5.726¢/lb.	5.578¢/lb.	7.25¢/lb.

These prices compare with averages for the period of the First World War 1914-1918 as follows:

Copper	Lead	Zinc
23.375¢/lb.	6.35¢/lb.	9.50¢/lb.

The principal factor tending to hold prices down at the present time is the greatly increased supply of all three metals available from British Empire sources in Canada, Australia, and Rhodesia, plus the whole-hearted cooperation of the producers in those areas with the British authorities in refraining from profiteering. In the 1914-1918 war the bulk of these metals was supplied by the United States and prior to their entry into the war, prices had skyrocketed to a point with copper where government action was imperative at the time of the entry in 1917. The price was fixed by the War Industries Board first at 23¢ and later increased to 26¢. As copper had sold as high as 33¢ in 1916, this seemed like a very drastic reduction, but it still left a margin of profit even after war taxes of 6.30¢/lb., 70 per cent higher than the historical average for the industry of 3.70¢/lb. For comparison see the table next page for 1921-1939 inclusive with an estimate for 1940. The table shows the record of a group of American owned copper companies in the United States, Mexico, and South America, from the post-war depression of 1921 to the end of 1939. They contributed about 45 per cent of the world production in 1939, and a little over 50 per cent in the earlier years, and, therefore, constitute a representative sample of the industry. The same group or their predecessors in the 5-year period 1916-1920 inclusive, when copper averaged 23.35¢/lb., showed 6.30¢/lb. (see above) distributed in bond interest and dividends, and supplied better than 65 per cent of the world's total production.

The estimated distributions for 1940 are about the average for the six years 1923-1928 inclusive, sometimes referred to as a normal period. The average annual production for this earlier period was 2,054,000,000 lbs., the weighted average price received was 13.81¢/lb. and the distributions were 3.51¢/lb. In other words on a price 2.18¢ lower and a volume 14 per cent larger, the same amount in bond interest and dividends will be distributed. Obviously costs have been substantially reduced, and a price of 12¼¢/lb. would about restore the unit margin of profit of the earlier period in spite of increased wages (shorter hours and higher hourly rates), increased taxes, etc.

The table following shows the course of copper security prices over the last 20 years for the same group considered in the first table. The 1929 highs and 1932 lows have little relation to actual values. The one is about as absurd as the other. Long continued study of the industry has shown that, given the ore bodies to develop, equip the mines, mills, smelters and refineries to produce electrolytic copper, together with adequate working capital, requires an actual cash investment of about 35¢ a

SELLING PRICE AND INTEREST AND DIVIDENDS PAID BY CERTAIN COMPANIES, 1921-39

Year	Production (Pounds) (000 omitted)	Average Selling Price per Pound (cents)	Bond Interest and Dividends Paid		Per Cent of Average Selling Price Paid Out in Bond Interest and Dividends
			Total (000 omitted)	Per Pound (cents)	
1921	520,100	12.50	$19,200	3.69	29.5
1922	1,064,000	13.38	23,100	2.17	16.2
1923	1,581,000	14.42	61,700	3.90	27.0
1924	1,924,000	13.02	55,000	2.75	19.6
1925	2,030,000	14.04	64,600	3.13	22.6
1926	2,114,000	13.86	75,000	3.55	25.7
1927	2,156,900	12.92	82,500	3.82	29.6
1928	2,496,500	14.57	94,900	3.85	26.4
1929	2,440,800	18.11	159,400	5.93	32.7
1930	1,888,600	12.98	95,600	4.97	38.3
1931	1,702,400	8.116	41,300	2.43	29.9
1932	882,200	5.555	8,400	.95	17.1
1933	889,706	7.025	13,425	1.508	21.5
1934	1,105,538	8.428	28,041	2.536	30.1
1935	1,365,190	8.649	31,817	2.331	27.0
1936	1,631.754	9.474	54,613	3.347	35.3
1937	2,483,866	13.167	89,056	3.585	27.2
1938	1,806,860	10.000	49,322	2.729	27.3
1939	2,081,704	10.965	57,292	2.752	25.0
Total	32,465,018	12.151	1,104,266	3.401	28.0
1940 (Est.)	2,400,000	11.63	72,000	3.000	25.8

Note that figure 12.151¢ average selling price is weighted by applying the average E. & M. J. selling price in New York for each year against the production for that year. This figure is subject to two sources of error. (1) Copper sold in Europe at slightly lower or higher prices than the New York market. Over this particular period, the variations should be largely compensating. (2) The individual companies in the group secured prices somewhat higher or lower than the E. & M. J. average. But these variations should also be compensating in large measure.

pound of annual output. Therefore, our group producing 2,500,000,000 lbs. a year has a real investment of about $875,000,000. This is some $30,000,000 less than the present market value of the outstanding securities. Certainly the ore bodies themselves are worth at least that amount. The present market value would, therefore, appear conservative.

In the case of lead, there seems little reason to expect a repetition of 1914-1918 prices. With zinc, however, there is an apparent bottleneck in the domestic supply of both high grade and slab zinc, not because of any shortage of ore, but because of insufficient plant capacity. However, expansion is now in process. It is possible that a similar shortage may exist in the British Empire supply, but there is no information available to support this assumption.

Aluminum prices at 17¢/lb. compare with first World War prices of

MARKET VALUE OF SECURITIES AND YIELD, 1920-40

Year	Year-End Market Value of Securities (000,000 omitted)	Yield Based on Interest and Dividend Payments (p. c.)
1920 (lows)	$ 700	1.74
1921	913	2.10
1922	876	2.64
1923	959	6.43
1924	1,160	4.74
1925	1,142	5.67
1926	1,140	6.58
1927	1,144	7.12
1928	2,439	3.88
1929 (highs)	3,351	4.76
1929	1,803	8.84
1930	754	11.93
1931	334	9.67
1932	222	2.35
1933	616	2.17
1934	530	5.29
1935	882	3.61
1936	1,652	3.30
1937	938	9.49
1938	1,176	4.19
1939	1,012	5.66
1940	906	8.00*

* Estimated.

	Average Price	Current Price
Nickel	35¢ 1917	33¢
Chrome Ore	$50. per long ton 1917	
(48–50% Cr_2O_3)	62.59 per long ton 1918*	$32. per long ton
Aluminum	51.25¢**	17.00¢
Tin	61.802¢	50.10¢
Quicksilver	$106.30	$164–166
Manganese Ore	$50. per long ton 1917	50.00¢–55.00¢
(48%—)	61. per long ton 1918*	per unit

* Fixed by the War Industries Board.
** Aluminum Co. of America, 1917, 38¢; 1918, 33¢.

38¢/lb. in 1917 and 33¢ in 1918 by the Aluminum Company of America, and 51.25¢ the open market average in 1917.

PRODUCTION COSTS

Undoubtedly, costs of production of all the metals have been reduced through technological improvements and mass production methods. With metals that are relatively indestructible, the increasing supply of metal reclaimed from obsolescent machines and structures will tend to prevent rising prices with or against the general price levels.

It is dangerous for any generation to assume that future improvement in technology can not result in further reduction of costs. But, it is obvious that with the extraction of metals from their ores approaching 100 per cent, here is one factor that has played an important part in cost reductions in the last 40 years that will no longer do so. However, this does not mean that other fields of improvement are not still wide open. Many times in history erroneous conclusions have been drawn about the limits in human civilization to future progress. It seems wiser to recognize that a finished economy has never existed and to believe that it never will exist. Therefore, governmental policies with respect to production and labor based on any other belief are senseless. It is to be hoped that the rude awakening of the war will purge our national thinking of all such fallacies.

PETROLEUM

By Axtell J. Byles

President, American Petroleum Institute

THE INDUSTRY AND NATIONAL DEFENSE

Record-breaking production and consumption of petroleum in 1940 further demonstrated the readiness of the petroleum industry to meet all demands of America's national defense program with fewer readjustments than any other industry of comparable importance. All previous records in the history of the petroleum industry were shattered in 1940, yet these unprecedented demands were met without nearly using up the industry's full and still-growing capacities.

With but minor changes, government surveys during the year revealed, the petroleum industry is prepared to fill all conceivable normal and increased needs for its own vitally important products, and at the same time to produce from petroleum synthetic substitutes for other essential substances. Commercial production of synthetic rubber, toluene, and glycerin, the three most important of these substitutes for national defense, was begun at petroleum refineries in 1940. For the production of the quantities and qualities of the super aviation fuels necessary for all-out military operations, the American petroleum industry, alone among the world's petroleum enterprises, is prepared.

RECORD PRODUCTION AND CONSUMPTION

The 1940 operations of the industry broke virtually every production, manufacturing, and consumption record on the books, the year-end estimates reveal. More oil was produced, more refined products were manufactured, and more petroleum products were consumed in the United States than ever before in the 80-year history of the industry. United States consumption averaged nearly 1,800 gallons per family.

Exports, which began to feel the full effects of the war during the year, were the only branch of the industry's business to decline in 1940. Contributory to the large decreases in foreign business were the loss of Central European markets, the strict rationing of petroleum products throughout most of the world outside the Western Hemisphere, the availability of substantial Asian and South American oil supplies to Great Britain and her allies, governmental embargoes of some products, and the use of exchange credits here for other products not available elsewhere. Motor fuel exports particularly were affected, and dropped more than 40 per cent from 1939, because of decreased foreign purchases and, to some extent, the embargoes and export licensing of our own government. Crude oil foreign sales declined 24 per cent, and refined products as a whole, 32 per cent.

EXTENSION AND IMPROVEMENT OF REFINING PROCESSES

Catalytic cracking, polymerization, alkylation, isomerization, aromatization, hydrogenation, and the other modern refining processes were extended and improved during 1940. These are the processes which have been responsible for the commercial production from petroleum of the finest aviation fuels, and for the synthetic rubber, toluene, glycerin, and many other basic industrial chemicals. Most of them utilize as raw material the by-product refinery gases which until recently had no apparent use except as heating fuel.

OIL INVENTORIES

Proved underground reserves of crude oil had increased at the beginning of the year, the latest inventory, to nearly 18,500,000,000 barrels, the highest total ever. During the past five years alone, new discoveries and development of older fields have increased reserve inventories by more than 12,000,000,000 barrels, which is more than twice the quantity actually produced in the same period.

PRICE AND TAX TRENDS

Petroleum prices declined again in 1940. Retail price of motor fuel, the industry's chief product, dropped to the lowest point, except for 1933, since 1919, but the highest average gasoline taxes ever levied kept at a high level the cost of motor fuel to the average consumer. The total petroleum tax bill, including taxes on the industry and its products, is estimated to have climbed to a new record high of approximately $1,500,000,000, or nearly one-tenth of all taxes levied in the United States.

HEARINGS AND INVESTIGATIONS

As usual, the industry continued in 1940 to find itself in the perennial goldfish-bowl of governmental investigation. Testimony by oil-state executives and industry experts at one of these investigations, the Cole Committee hearings early in 1940, detailed the conservation progress made by the industry itself and by state regulation in most of the leading oil states. This testimony, it is believed, proved conclusively that no emergency nor serious lack of adequate conservation regulation warrant the Federal control of the oil industry which the Cole Bill seeks. The Interstate Oil Compact Commission continued to strengthen its conservation activities during the year. And with the decline in production in Illinois, only major oil state now without legislative or voluntary oil conservation control, enactment of adequate state regulation there is forecast.

A survey of the capacities of the petroleum industry late in 1940 by Dr. Robert E. Wilson, industry representative on the Advisory Commission to the Council of National Defense, revealed that "no industry of comparable importance to defense has so few even potential bottlenecks as has the petroleum industry."

At the request of the Commission, committees of the American Petroleum Institute have been appointed and already have begun consideration of oil-storage defense problems.

CRUDE PETROLEUM

World and Domestic Output.—Total world production of crude petroleum rose to a new high record in 1940. Production in the United States, up 7 per cent from 1939 to 1,354,423,000 barrels, accounted for all of the world increase, for outside the United States production dropped slightly from the 1939 record to 795,318,000 barrels. The world total is estimated at 2,149,741,000 barrels, of which the United States share rose to 63 per cent from 61 per cent in 1939.

PRODUCTION OF CRUDE PETROLEUM

(In barrels of 42 U. S. gallons)

Year	United States	Rest of World	Total World
1934	908,065,000	613,380,000	1,521,445,000
1935	996,596,000	658,092,000	1,654,688,000
1936	1,099,687,000	702,099,000	1,801,786,000
1937	1,279,160,000	762,878,000	2,042,038,000
1938	1,214,355,000	753,332,000	1,967,687,000
1939	1,264,962,000	811,810,000	2,076,772,000
1940 (est.)	1,354,423,000	795,318,000	2,149,741,000

Exploration and Drilling Activity.—Discovery of new oil fields and of new producing formations at other levels in older fields continued during 1940, but no accurate data nor estimates are yet available of the extent of these discoveries. Development proceeded rapidly in Mississippi, in which commercial quantities of oil first were found in 1939. In 1940, the first full year of production, Mississippi's total mounted nearly to 4,500,000 barrels, small compared with the leading oil states but already greater than production in the older States of West Virginia and Ohio, and, of course, Missouri, Nebraska, Tennessee, and Utah.

The number of completed wells increased 9 per cent from 1939 to 30,264. Of these, it is estimated, 21,277 were producing oil wells, 2,224 gas wells, and the rest, 6,763, were unsuccessful dry holes.

Complete data on deep drilling are lacking, but it is believed the number of wells drilled to below 10,000 feet increased markedly in 1940. The depth record set in 1938 is still unbroken, however.

WELLS COMPLETED IN THE UNITED STATES

Year	Oil	Gas	Dry	Total
1934	12,520	1,368	4,309	18,197
1935	15,108	1,401	4,911	21,420
1936	18,523	2,070	5,297	25,890
1937	23,678	2,695	6,432	32,805
1938	19,286	2,066	6,141	27,493
1939	19,045	2,198	6,474	27,717
1940 (est.)	21,277	2,224	6,763	30,264

Storage.—Amount of crude oil in storage at the end of 1940 is believed to have mounted to 263,000,000 barrels, from the 1939 year-end carry-over of 239,978,000 barrels, which was the lowest year-end figure since 1921.

Foreign Trade.—Exports of crude oil declined substantially in 1940 to

CRUDE OIL IN STORAGE AT END OF YEAR

(in barrels of 42 gallons)

Year	
1934	337,254,000
1935	314,855,000
1936	288,579,000
1937	306,826,000
1938	274,958,000
1939	239,978,000
1940 (est.)	263,000,000

54,721,000 barrels, about the 1935-36 level, and were 24 per cent below 1939. Imports, on the other hand, rose to 41,673,000 barrels, a gain of 26 per cent from 1939. This increase, in the face of normally high import duties, is accounted for in part by the entry of most Venezuelan crude oil at a lesser rate, under the terms of the reciprocal trade agreement effective during 1940, and in part by large increases in Mexican imports, much beyond that country's quota limits. Almost all United States crude oil imports come from Mexico and Venezuela, with about 70 per cent of the 1940 total from the latter country.

FOREIGN TRADE IN U. S. PETROLEUM

(in barrels of 42 gallons)

Year	Imports	Exports
1934	35,558,000	41,127,000
1935	32,239,000	51,430,000
1936	32,327,000	50,313,000
1937	27,484,000	67,234,000
1938	26,412,000	77,254,000
1939	33,095,000	72,076,000
1940 (est.)	41,673,000	54,721,000

Prices.—Average value of crude oil at the well in 1939 was $1.02 a barrel and, although no estimates are available, it is believed the 1940 average will be approximately the same. The 36-degree gravity Oklahoma-Kansas price, used as an index of crude oil prices, remained stationary throughout 1940 at $1.02 a barrel, the price established late in 1938.

CRUDE OIL PRICES

(Per barrel of 36 deg. A.P.I. gravity Oklahoma-Kansas oil)

Year	High	Low
1934	$1.00	$1.00
1935	1.00	1.00
1936	1.10	1.00
1937	1.22	1.10
1938	1.22	1.02
1939	1.02	1.02
1940*	1.02	1.02

* Up to Dec. 15, 1940.

PETROLEUM REFINING

Refinery Operations.—Capacity of United States refineries undoubtedly increased in 1940 from the record-high capacity at the beginning of the year, 4,721,213 barrels of crude oil a day, but no accurate data are yet available. Net increase in capacity from year to year, however, gives only a partial picture. During 1939 the nation's refineries put in service 380,866 barrels of new capacity and retired 260,775 barrels of obsolete equipment, for a net increase of 120,091 barrels. Even these figures refer only to crude-oil capacity, and do not reflect the tremendous plant improvement that has been taking place in the last few years, in the building of additional equipment designed to improve or to process further the products of crude-oil distillation.

Most of these new processes, by getting more of the most useful products for each barrel of crude oil run, act as efficient conservation measures that undoubtedly have saved more oil than all other conservation measures of the industry combined. Today the petroleum industry uses less than half as much crude oil to get a given quantity of gasoline as it did 20 years ago.

Of the Jan. 1, 1940 refinery capacity, 421,952 barrels were shut down, but more than three-fourths was reported in good condition. This shut-

CAPACITY OF U. S. REFINERIES

(Operating, shut-down, and building, as of Jan. 1)

Year	Capacity (barrels per day)
1935	4,072,400
1936	4,163,946
1937	4,376,081
1938	4,373,701
1939	4,650,805
1940	4,721,213

down capacity, it is hard to believe, is greater than the entire refining capacity of the industry in 1917. Further, the all-time record crude runs in 1940 did not nearly strain even the operating capacity.

Volume.—Quantity of crude oil run to stills by United States refineries in 1940 increased by 4 per cent from 1939. Total runs were 1,291,516,000 barrels, or an average of 3,529,000 barrels a day. Without considering necessary shut-down time for repairs and cleaning, this amounted to 84 per cent of the capacity operating at the beginning of the year, and to only 75 per cent of the total capacity operating, shut-down, and building.

CRUDE OIL RUN TO STILLS

(in barrels of 42 gallons)

Year	
1934	895,636,000
1935	965,790,000
1936	1,068,570,000
1937	1,183,440,000
1938	1,165,015,000
1939	1,237,840,000
1940 (est.)	1,291,516,000

Motor Fuel Production.—Total production of motor fuel in 1940 amounted to 614,459,000 barrels, an increase of less than 1 per cent from 1939. Domestic demand rose sharply, but declines in exports, and withdrawals from stocks, balanced the relatively-lower production. These production figures include manufacture of gasoline from crude oil at refineries, and natural gasoline and benzol produced.

MOTOR FUEL PRODUCED IN U. S.

(in barrels of 42 gallons)

Year	
1934	427,034,000
1935	468,021,000
1936	516,266,000
1937	571,727,000
1938	569,162,000
1939	611,043,000
1940 (est.)	614,459,000

Other Refined Products.—Production of all other major refined products increased to the highest peaks in the history of the industry. Gains from 1939 of 10 per cent for light fuel oils (gas, oil and distillates) and of 3 per cent for residual fuel oil were registered, bringing total production of fuel oils to 495,791,000 barrels. Similar increases are estimated for kerosene, lubricants, and other major petroleum products.

GAS OIL AND FUEL OIL PRODUCED IN U. S. REFINERIES

(in barrels of 42 gallons)

Year	Gas Oil and Distillates	Residual Fuel Oil	Total Fuel Oil
1934	94,972,000	240,381,000	335,353,000
1935	100,235,000	259,826,000	360,061,000
1936	125,906,000	287,968,000	413,874,000
1937	146,706,000	312,064,000	458,770,000
1938	151,774,000	294,890,000	446,664,000
1939	161,746,000	305,944,000	467,690,000
1940 (est.)	179,123,000	316,668,000	495,791,000

MARKETING

Demand for Petroleum Products.—Domestic consumption of petroleum products reached unprecedented heights in 1940, breaking all previous records by a substantial margin. Total consumption averaged almost 1,800 gallons per United States family. Exports, however, dropped further even than did crude oil exports; the overall decrease for all refined products was 32 per cent.

More motor vehicles were in use than ever before, the average motorist drove further and used more motor fuel, more home-heating and industrial oil burners were operating, and in general the demands on the petroleum industry passed all existing records. The domestic demand for motor fuel increased 6 per cent, or, expressed in gallons, nearly 1,500,000,000 gallons. This increase alone is greater by far than the total consumption of motor fuel, in normal times, in any other country in the world, except Great Britain.

Steadily increasing use of domestic oil burners, combined in 1940 with heating weather appreciably colder than in 1939, was the major reason for the tremendous increase in domestic consumption of light fuel oils. Total consumption, of which between 70 per cent and 75 per cent was for home heating, reached an estimated 164,571,000 barrels in 1940, a gain of more than 18 per cent from 1939.

Domestic consumption of residual fuel oil, which includes use for heating, in manufacturing, for railroad locomotives, for bunkering vessels, and other industrial purposes, also increased for a 1940 total of 340,251,000 barrels, a gain of more than 5 per cent from 1939.

MOTOR FUEL DEMAND

(in barrels of 42 gallons)

Year	Domestic Demand	Total Demand
1934	410,339,000	435,025,000
1935	434,810,000	465,423,000
1936	481,696,000	510,252,000
1937	519,352,000	557,658,000
1938	523,003,000	573,112,000
1939	555,509,000	600,147,000
1940 (est.)	590,737,000	615,656,000

GAS OIL AND DISTILLATE FUEL OIL DEMAND

(in barrels of 42 gallons)

Year	Domestic Demand	Total Demand
1934	74,824,000	89,330,000
1935	86,018,000	102,277,000
1936	102,757,000	123,205,000
1937	116,841,000	146,970,000
1938	117,449,000	147,090,000
1939	138,723,000	170,743,000
1940 (est.)	164,571,000	184,306,000

RESIDUAL FUEL OIL DEMAND

(in barrels of 42 gallons)

Year	Domestic Demand	Total Demand
1934	265,547,000	279,646,000
1935	280,695,000	293,394,000
1936	307,884,000	322,319,000
1937	325,514,000	340,818,000
1938	290,065,000	307,985,000
1939	322,875,000	340,460,000
1940 (est.)	340,251,000	357,081,000

ESTIMATED NUMBER OF OIL BURNERS IN OPERATION

End of Year	Domestic	Industrial	Total
1934	1,014,100	62,900	1,077,000
1935	1,155,000	77,900	1,232,900
1936	1,355,800	96,300	1,452,100
1937	1,543,800	115,700	1,659,500
1938	1,688,500	129,700	1,818,200
1939	1,904,600	146,100	2,071,500
1940 (est.)	2,140,000	166,900	2,306,900

Foreign Trade.—As with crude oil, exports of all refined petroleum products dropped markedly and imports increased in 1940; nevertheless, exports still remained more than double the estimated imports. Total exports were approximately 80,027,000 barrels in 1940, compared with 116,883,000 barrels in 1939; the 1940 business was about at the 1935-36 level. Imports, however, increased 51 per cent to 39,266,000 barrels from 25,965,000 barrels in 1939.

Estimated export and import data for all refined products combined are in the table below; exports of motor fuel, gas oil and distillate fuel oil, and residual fuel oil, may be figured from the demand tables in the preceding section.

FOREIGN TRADE IN REFINED PETROLEUM PRODUCTS

(in barrels of 42 gallons)

Year	Exports	Imports
1934	73,380,000	14,936,000
1935	77,557,000	20,396,000
1936	81,687,000	24,777,000
1937	105,600,000	29,673,000
1938	116,474,000	27,896,000
1939	116,883,000	25,965,000
1940 (est.)	80,027,000	39,266,000

Distribution.—Census data from 1939, just released, indicates that the number of petroleum service stations increased to 241,856 in 1939 from 197,568 in 1935, and 121,513 in 1929. Apparently the building of stations is slowing down appreciably, for the number increased 63 per cent from 1929 to 1935, but only 22 per cent from 1935 to 1939. Gross retail sales by these service stations amounted to $2,822,481 in 1939, against the 1935 total of $1,967,714 and 1929's $1,787,423. Thus the service station's share of total retail business by all types of stores rose from 3.7 per cent in 1929 to 6.0 per cent in 1935, and to 6.7 per cent in 1939.

Preliminary returns from the census of wholesale distribution reveal 30,822 petroleum bulk stations and terminals and 1,296 other wholesale distributors of petroleum products in 1939, compared with 27,333 bulk plants and 674 other distributors in 1935.

PRICES AND TAXES

Trends.—Retail and wholesale prices of petroleum products both continued to move downward in 1940, maintaining their relative positions well below the indexed prices for other products. The petroleum-product wholesale index dropped to 50.0 from 52.2 in 1939, while the all-commodity price index rose to 78.3 from 77.1 in 1939.

INDEX OF WHOLESALE PRICES

(1926 = 100)

(U. S. Bureau of Labor Statistics)

Year	Petroleum Products	All Commodities
1936	57.3	80.8
1937	60.5	86.3
1938	55.9	78.6
1939	52.2	77.1
1940 (10 mos.)	50.0	78.3

Gasoline Prices and Taxes.—The retail price of gasoline in 1940 dropped to the lowest level, except for 1933, since price data first were collected in 1919. Average, for 50 representative U. S. cities, was 12.75 cents a gallon, compared with 13.31 cents in 1939, the all-time low of 12.41 cents in 1933, and the all-time high of 29.74 cents in 1920. State, Federal, and local taxes, on the average, rose to the highest point in the history of gasoline taxation, however, and kept the cost of motor fuel to the consumer at a high level in 1940. The tax average, for the 50 cities, was 5.66 cents in 1940, against 5.44 cents in 1939, and 0.09 cents in 1920.

MOTOR FUEL PRICES, TAXES, AND COSTS

Year	Average Retail Price	State and Federal Taxes	Average Total Cost Per Gallon to Consumer
1920	$.2974	$.0009	$.2983
1925	.2009	.0211	.2220
1929	.1792	.0350	.2142
1933	.1241	.0541	.1782
1936	.1410	.0535	.1945
1937	.1458	.0540	.1998
1938	.1407	.0544	.1951
1939	.1331	.0544	.1875
1940	.1275	.0566	.1841

For the average motorist the price of motor fuel has been reduced so far that in 1940 the highest per-motor vehicle annual consumption in history, 740 gallons, cost only $94.35 without taxes. Twenty years ago the average motor vehicle used only 500 gallons a year, yet for 240 less gallons the price was $148.70. Gasoline taxes, however, exhibit the exactly opposite trend. On 500 gallons average consumption in 1920 the average tax levy was only 45 cents. In 1940, the average annual tax cost per consumer was $41.88.

Petroleum Taxes.—The total tax bill for the petroleum industry and its customers mounted in 1940 to about $1,500,000,000, an amount nearly equal to the total annual payroll of the industry, and representing about one-tenth of all taxes of all kinds levied in the United States.

PETROLEUM TAXES

Year	Total Taxes
1934	$1,046,149,675
1935	1,121,936,698
1936	1,183,147,498
1937	1,315,487,798
1938	1,286,114,473
1939	1,354,166,333
1940 (est.)	1,500,000,000

ESTIMATED ANNUAL COST OF MOTOR FUEL AND TAXES PER CONSUMER

(based on average number of motor vehicles in use each year)

Year	Annual Consumption Per Vehicle (gallons)	Cost of Fuel	Cost of Taxes	Total Cost to Consumer
1920	500	$148.70	$ 0.45	$149.15
1925	502	100.85	10.59	111.44
1929	619	110.92	21.67	132.59
1933	625	77.56	33.81	111.37
1935	677	91.73	35.81	127.54
1937	721	105.12	38.93	144.05
1938	701	98.63	38.13	136.76
1939	728	96.90	39.60	136.50
1940 (est.)	740	94.35	41.88	136.23

Greatest part of these taxes—$1,146,000,000 in 1940—is levied as a sales tax on motor fuel, both the Federal and state governments, and a few local governments, sharing. No tax rate changes were made by the states in 1940, but effective July 1st the Federal Government increased its 1-cent-per-gallon levy to 1½ cents, the additional tax designed to help finance the defense program. The increase alone (one-half cent), it is estimated, will bring the government well over $100,000,000 in additional revenue in 1941, and it was the major factor in the 33 per cent increase in 1940 to $278,000,000. The estimated state tax bill for 1940 is $868,000,000.

GASOLINE TAXES PAID BY CONSUMERS

Year	State	Federal	Total
1934	$565,027,000	$170,109,269	$ 735,136,269
1935	616,851,671	172,262,481	789,114,152
1936	686,631,000	186,321,448	872,952,448
1937	756,930,000	203,025,380	959,955,380
1938	766,853,000	200,881,000	967,734,000
1939	816,433,000	215,217,000	1,031,650,000
1940 (est.)	868,000,000	278,000,000	1,146,000,000

PETROLEUM RESERVES

Proved underground reserves of petroleum rose at the beginning of 1940 to the highest point in the history of the industry, nearly 18,500,000,000 barrels, according to the inventory made by a committee of the American Petroleum Institute. These reserves are not "all the oil left," but rather a continuing stock inventory of the amount of oil as it is found, less what has been produced. No attempt is made to estimate for any of the oil still to be discovered, and, in many fields only partially developed, the current estimates are ultra-conservative.

America has enough oil. Currently, if emergency demanded it, wells which in most states now are prorated or choked down to but a fraction of their capacity, could be opened up at a moment's notice to meet any conceivable increased demand. Petroleum technologists are finding more oil every year, finding better ways to produce oil with greater recovery. In the past five years the amount of new oil discovered and developed was greater than the total production of oil in the first 70 years of the oil industry, from 1859 to 1929. Refinery technologists every year are developing new manufacturing methods which increase the proportion of useful products, and increase their ability to do work. These developments alone have accomplished more in conservation than all other advances combined.

Viewed in this light, the reserve table below should be interpreted correctly as showing only the amount of oil in underground rather than aboveground storage, not "all the oil left."

ESTIMATED PROVED U. S. CRUDE-OIL RESERVES, BY STATES

(barrels of 42 gallons)

State	Proved Reserves as of Jan. 1, 1939	Proved Reserves as of Jan. 1, 1940
Arkansas	188,246,000	320,148,000
California	3,188,763,000	3,532,342,000
Colorado	17,713,000	20,162,000
Illinois	242,847,000	381,636,000
Indiana	6,031,000	14,164,000
Kansas	613,230,000	725,467,000
Kentucky	37,545,000	44,086,000
Louisiana	1,040,256,000	1,173,225,000
Michigan	42,749,000	51,078,000
Montana	104,471,000	93,460,000
New Mexico	703,252,000	687,168,000
New York	40,490,000	35,392,000
Ohio	26,358,000	31,692,000
Oklahoma	1,162,370,000	1,063,152,000
Pennsylvania	200,460,000	183,123,000
Texas	9,447,764,000	9,768,371,000
West Virginia	24,468,000	45,888,000
Wyoming	261,133,000	305,616,000
Miscellaneous*	....	6,842,000
Total United States	17,348,146,000	18,483,012,000

* (This includes Mississippi, Nebraska, Tennessee, Missouri, and Utah).

PERIODICAL PUBLICATIONS

American Gas Journal
53 Park Place, New York City.
American Mineralogist
U.S. Geological Survey, Washington, D.C.
Chemical and Metallurgical Engineering
330 West 42nd Street, New York City.
Coal Age
330 West 42nd Street, New York City.
Engineering and Mining Journal
330 West 42nd Street, New York City.
Fueloil Journal
420 Madison Ave., New York City.
Iron Age
100 East 42nd Street, New York City.
Metal Industry
116 John Street, New York City.
Metal Progress
7016 Euclid Ave., Cleveland, O.
Metals and Alloys
330 West 42nd Street, New York City.
Mining and Metallurgy
29 West 39th Street, New York City.
National Petroleum News
1213 West Third Street, Cleveland, O.
Natural Gas
4 West Seventh Street, Cincinnati, O.
Oil and Gas Journal
114 West Second Street, Tulsa, Okla.
Oil Weekly
3301 Buffalo Drive, Houston, Tex.
Petroleum Engineer
701 Allen Building, Dallas, Tex.

XII. MINERAL INDUSTRIES

Petroleum World
Bendix Building, Los Angeles, Calif.

Steel Facts
350 Fifth Ave., New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Assn. of Petroleum Geologists, Box 1852, Tulsa, Okla.

American Gas Assn., 420 Lexington Ave., New York City.

American Institute of Mining & Metallurgical Engineering, 29 W. 39th St., New York City.

American Iron and Steel Institute, 350 Fifth Ave., New York City.

American Mining Congress, 841 Munsey Bldg., Washington, D.C.

American Petroleum Institute, 50 West 50th St., New York City.

American Petroleum Industries Committee, 50 W. 50th St., New York City.

American Zinc Institute, 60 E. 42nd St., New York City.

DIVISION XIII

MANUFACTURES AND TRANSPORTATION

CONDITIONS IN MANUFACTURING

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INDUSTRIAL PRODUCTION

American workers, in the large, are still oblivious of statistics and index numbers that tell of the level of the nation's productive activity. Theirs is the more mundane knowledge in terms of the food, clothing, shelter, automobiles, even savings, that can be bought with the incomes from their labor. Yet it is to statistics we must turn to review the 1940 industrial record the better to assess the prospects for 1941 and beyond.

Inheriting dislocations from 1939 in productive industry born chiefly with the outbreak of war abroad on Sept. 1 of that year, it was not surprising that industrial output, after allowing for usual seasonal considerations, should have sloughed in early 1940. From the all-time high recorded for December, 1939, which had exceeded anything seen even in 1929, the revised index of industrial production, as issued by the Board of Governors of the Federal Reserve System by April, 1940 had declined by about 12 per cent. Based upon the five-year monthly average for 1935-1939 as 100, the index for April, 1940 at 111 contrasted with 126 for the preceding December (revision in index was completed in 1940 "to provide a broader and more accurate measure of current changes in the physical volume of industrial output").

From the April low, abetted progressively by the mounting emphasis on defense, the production index resumed the advance for the balance of 1940 ending with a December figure of about 136, once again shattering all previous records. And as a result the year 1940 as a whole provided the largest volume of physical production on the part of our mines and factories in our entire history and this despite the bottlenecks in sundry key industries that were created and accentuated by the rising pressures of our defense effort. Taking the year in its entirety, industrial ouput in 1940 was some 13 per cent higher than in 1939; some 22 per cent greater than the average for 1935-1939; more than twice as great as the volume in 1932, the low year of the Great Depression; and almost 11 per cent greater than the volume in the 1929 boom-year since which our population has increased by only about 8 per cent.

In this performance record many things of importance are shrouded, which, when unveiled, afford some evidence, defense requirements notwithstanding, that, momentarily at least, the productive level attained in December, 1940, seasonal factors considered, can not much longer be sustained; that for the early months of 1941 some recession is highly probable. In the first place the rise in industrial output in 1940 from the April low to the December high amounted to but 22 per cent, while for 1939, from the April low to the December high, admittedly from a lower base, the advance amounted to 30 per cent. Considered together with the fact that the December, 1940 volume of industrial output was at a level never before attained, this decelerative rate of gain as between two of the most productive periods sharply outlines the bottleneck problems that as 1940 closed were still plaguing the very industries that themselves were chiefly responsible for the high level of general production in 1940.

Secondly, no month during the rising phase of 1940 was able to record as great a percentage gain as the 9 per cent increase shown for September, 1939 over the previous month; this is still another facet of the same bottleneck problem. Though it be true that the current expansion in productive capacities now gaining momentum virtually assures even higher levels of industrial output, it is as yet extremely dubious that these added plant facilities will be available soon enough to negative the near-term implications. And even should they be, gathering external threats to productive schedules may then have assumed menacing proportions. Of these, labor strife and the imponderables tied to war itself are prime factors which will operate to set something of a low ceiling over the industrial sky, though it be admitted that 1941 as a whole now has all of the earmarks of shattering all previous records of industrial production.

On the one hand there are growing threats of strikes and lockouts in our key industries, such as, for example, in coal mining where the existing agreement between operators and miners expires in April. On the other hand there are these questions: How long, war? What outcome? What priorities of men and materials will yet have to be invoked to further our rapidly crystalizing national policy? Will the United States enter the war as an active belligerent, and when?

As 1940 closed there were still other gathering evidences that foreshadow some let-down in production schedules, the seasonal elements considered, over the near-term. These are to be found outside of the statistics on production. To begin with, though the final quarter of 1940 recorded a gain in industrial output over the corresponding period of 1939 of about 6½ per cent, the aggregate movement of goods as seen from freight car loadings in the same period recorded an increase of but 4 per cent as contrasted with the volume for the final quarter of 1939. And in this there is little comfort to be gathered from the fact of continued diversion of freight from the railroads to automobile trucks, for in essence the production recovery in the latter months of 1940 was chiefly induced by the durable goods industries which, by their very nature, still must rely on the railroads of the nation to move their products.

For only a clue one may look at the figures covering goods stored in commercial warehouses. Here, at the 1940 year-end, as seen from figures on floor space occupancy, goods were inventoried in larger bulk than at any other year-end since the fatefully prophetic closing days of 1929. At the same time commercial, industrial, and agricultural loans by Federal Reserve member banks in the 101 reporting cities as 1940 closed were some 8½ per cent greater than three months earlier and almost 15 per cent larger than at the 1939 year-end when the industrial production rate was but 7 per cent lower than it was at the close of 1940.

In this trinity of factors—though there be others—are further proofs, relatively favorable individual figures as to inventories themselves notwithstanding, that serious dislocations are in the making which will call for later correction. Goods produced but not moved to points of consumption sooner or later have a way of sabotaging the production machine. And there is still something else that promises a nearby halt and probable temporary reverse in general industrial activity during the early months of 1941, seasonal factors considered.

For out of the defense-induced recovery itself has come a worsened maladjustment between the durable and nondurable goods manufacturing industries which always in the past has signalized a coming reversal in the general index of industrial output.

DURABLE MANUFACTURES

The Federal Reserve index of the output of durable manufactures (embracing iron and steel, machinery, transportation equipment, nonferrous metals and products, lumber and products, and stone, clay and glass products) at about 135 per cent of the average for the base period, 1935-1939, taking 1940 as a whole was not only 25 per cent greater than the 1939 level but even exceeded the previous all-time annual peak of 1929 by about 1½ per cent. More, as 1940 ended, the productive rate was virtually 60 per cent above the average for the base period, 1935-1939; practically 14 per cent higher than the comparable index for December, 1939; and fully 12 per cent greater than the previous all-time monthly highwater marks recorded for June and July of fateful 1929.

NONDURABLE MANUFACTURES

For this classification (embracing textiles and products, leather and products, manufactured food products, alcoholic beverages, tobacco products, paper and products, printing and publishing, petroleum and coal products, chemicals, and rubber products), the 1940 annual index worked out to a level about 12 per cent above that of the base period, 1935-1939. With this performance the increase over 1939 amounted to about 4 per cent even though it be true that 1940 did establish a new high level in the output of nondurable manufactures and that the 1929 level was bested by some 20 per cent. More telling are these contrasts, especially when viewed alongside the index for durable manufactures; (1) the December rate of production of nondurable manufactures was only at about the level of December, 1939; (2) was only about 18 per cent above the five-year base period monthly average; (3) but was almost 25 per cent higher than was recorded for June, 1929, the peak month of that boom year. In these differentials are told the rough story of the diversities in the elasticity of demand as regards the products of the two basic segments of our industrial economy, the interactions of which give shape and substance to the schedule of general productive operations.

The minimum requirements of life, food, shelter and clothing, and some of life's simple amenities and comforts were supplied in unexampled style in 1940, thanks to the expenditures, real and in prospect, provided by our enlarging emphasis on defense, and in consequence, by the unparalleled output of durables of many descriptions, much of it in products uncreative of enduring wealth taken in the accepted sense.

Running the gamut from cotton consumption by textile mills to meat packing, from apparel wool consumption to the output of canned and dried milk, from whiskey production to the output of cigarettes, productive operations in factories manufacturing nondurables attained levels seldom if ever before reached, and especially in the closing months of the year.

Rayon, butter, cheese, pork and lard, and beef chalked up impressive production records for 1940. And so did pulp and paper production, and especially printing and wrapping papers, even newsprint. But against these and more were the relatively nondescript performances in the case of such industries as silk (as seen from deliveries to the mills), wheat flour, sugar refining, leather tanning, shoes, and automobile tires. Other anomalies of 1940 included an appreciable shrinkage from 1939 in the consumption of carpet wools in the face of a good gain in the output of household furniture.

PETROLEUM AND REFINERY PRODUCTS

The year 1940 established new high records for the petroleum industry, both as to production and demand. Though war abroad resulted in a material curtailment in the export of petroleum and its products, such loss of markets was more than offset by increased domestic takings and on a scale which represented one of the largest gains in the history of home consumption. Overall increases in demand for petroleum and its products ranged from about two to about eight per cent.

Besides adversely affecting exports the war was in large part responsible for the 1940 increase of more than one-third over 1939 in the volume of petroleum imports, which, with European markets more or less closed to them, likewise, South American producers were to some extent compelled to dump upon our rich market to the temporary discomfort of our own petroleum industry.

The general price improvement as to refinery products especially noticeable in the latter days of 1939 continued on into the early months of 1940. Coupled with increased consumption this provided measurably better earnings for the refiners for the first half of the year, only to suffer a relapse during the final half chiefly because of price weakness in the principal refinery product, gasoline. Nevertheless, taking the year as a whole, earnings in 1940 bested both 1938 and 1939.

In the petroleum picture of 1940 overproduction was still a plague disease; overproduction in crude, in great measure due to unregulated oil production in Illinois; overproduction in gasoline essentially caused by accelerated refinery operations made necessary by the demand for burner oils and the unrealized expected demand for refinery products from our usual export markets.

For the year 1940 the production of crude petroleum was some 8 per cent greater than it was for 1939 and since this gain, as measured in barrels, was greater than consumption, as the year closed there was an evident accumulation in crude stocks, which in the light of mounting demands of the defense program, the continuing gains in the number of units consuming gasoline and even the increased consumption per unit need occasion no serious misgivings as to 1941. Now that production of crude in Illinois has declined from a daily peak of 518,000 barrels recorded during the final half of 1940 to a level around 320,000 barrels, there is growing evidence that recent dislocations are on the mend. And unlike many other key industries there are no bottlenecks either in the production or distributive mechanisms of the petroleum industry. With ample supplies of the world's finest aviation grade gasolines and facilities for rapid increase in their production, we find here one industry, monopoly suits and threats of governmental regulation notwithstanding, that by its earlier initiative is geared to the new tempo.

ELECTRIC UTILITIES

Seemingly without end, once again in 1940 the electric utilities turned in a record for power production that shattered all previous peaks, with further promise of even greater heights. Power output at not far from 143,500,000,000 kilowatt hours was about 10 per cent greater in 1940 than in 1939; more, it sharply contrasts with the 1929 figure of about 96,000,000,000 kilowatt hours. Reflective of the 1940 quickening in industry, industrial sales of electric power exceeded those for 1939 by a bit more than 15 per cent; commercial sales of power at retail were up by some 7 per cent; while sales to residential users gained by about 10 per cent, and this at prices for power that were the lowest in history.

As a natural result of this quickened demand for power, manufacturers of electrical equipment and appliances, all the way from turbines and generators down to refrigerators, radios and toasters, generally enjoyed larger production and sales not only than in 1939 but in a decade, and in isolated cases, for all time.

But there is an obverse side; this is reflected in the earnings accounts of the electric power companies. Not more than 8 per cent of the total increase in gross revenues in 1940 over 1939 were carried over to net income. More revealing is this against the backdrop for the entire decade in which output of power had shown an expansion of some 55 per cent while, at the same time, though gross operating revenues had gained by almost 20 per cent, net income was lower by almost 10 per cent. For these contrasts the principal causes are to be found in lower rates for power; increased operating expenses of virtually 20 per cent; a more than doubling in taxes, Federal and local; and a material acceleration in the rate of charge-offs for depreciation on plant and properties. And yet as 1940 ended the efficiency of the industry was never so high, the better to cope with the inherited requirements for all-out defense.

RAILROADS

The railroads of the nation in 1940 moved more than 36,000,000 cars of freight of every description, for an increase of about 7 per cent over the 1939 total; on a ton-mile basis, revenue freight moved on the railroads in 1940, amounting to not far from 370,000,000,000 ton-miles, scored an advance over 1939 of about 11 per cent. And because of these gains in traffic which brought with them improved earnings, actual and in prospect, the roads undertook capital expenditures for additions and improvements in excess of $400,000,000, or more than half as much again as in 1939. These expenditures naturally percolated through industry generally, with the result that manufacturers of equipment, rails, and supplies enjoyed larger orders than in a decade. (See "Railroads," pp. 551-557.)

IRON AND STEEL

More than ever before in the two generations since its infancy, the steel industry in 1940 has deserved to be the symbol of industrial prowess that is America's. Having produced upwards of 66,500,000 net tons of steel ingots, for an increase of some 8 per cent over the former high of about 61,400,000 tons for 1929, the industry entered 1941 on an operating schedule which, if maintained, promises an output of around 80,000,000 tons for 1941.

In attaining its 1940 record output, the industry operated at an average of better than 82 per cent of rated plant capacity of about 83,200,000 tons. Though in 1929 the operating ratio to capacity averaged a bit more than 89 per cent current capacity of the industry is greater by some 11,000,000 tons than in that boom year. Further, the operating ratios for 1940 taken by quarters bespeak the vitality and dynamics of our industrial life as now accentuated by our defense effort.

Little wonder that for months to come the steel industry promises to provide records for employment and payrolls that will even best those established in 1940, themselves greater than any seen in 1929 when the average number of men employed and their aggregate payrolls with a longer work week were some 80 and 87 per cent, respectively, of the 1940 conditions. Standing at the highest level in history hourly wages of steel workers were in 1940 virtually 30 per cent higher than in 1929 while going prices for steel products as 1940 closed were generally lower than at any time since 1937, with little likelihood for any significant stiffening over nearby months. And encouragement, too, is to be found in the fact that the unexampled demands for steel and its products has left the basic steel industry with no traces of labor shortages or even of nearby visible threats thereof. But against this must be set the possibilities of labor troubles that may arise to mar the otherwise tranquil scene.

And because virtually 18 per cent of the steel items produced for sale in 1940, finished as well as semifinished products, was for export markets, about half thereof for Britain, any cessation of hostilities however arrived at could have sharp repercussions on the steel industry. Though only a note of caution it is one that will some day assume significance, the more so the longer the war continues. And in any event, the first half of 1941 bids fair to reveal much that not only will vitally affect the fortunes of the steel industry and industry generally but even the destinies of peoples and nations the world over. (See "Iron and Steel," pp. 506-8.).

NON-FERROUS METALS

So extensive was the industrial betterment of 1940 that it was hardly to be expected that participation therein would omit the non-ferrous metal industries; nor did it. For these industries in the aggregate, as seen from the Federal Reserve index, the 1940 output was almost 45 per cent greater than the average for 1935-1939, some 26 per cent greater than in 1939 alone, and more than 6 per cent higher than in the previous peak year 1929.

Virtually every branch of this industrial classification participated in the general advance, copper smelting, the copper-using industries, lead, zinc, the tin-consuming industries. Naturally defense requirements had varying impacts, but that this was a prime mover, direct and indirect, upon the productive schedules of the non-ferrous metal industries there can be no gainsaying.

Copper under less abnormal conditions than now prevail always has played a large role on our industrial stage and which now, with steel, has become the very star of the defense drama. Ammunition, ordnance, small arms, brass cartridge shell-cases in ever increasing volumes, these are some of the outward manifestations, to say nothing of increased demands from the electrical manufacturing industries, the power companies, even our communications systems, shipbuilding and aircraft industries. Small wonder that domestic production of copper in 1940 in attaining a level in excess of 1,000,000 tons about topped the previous all-time peak of 1929, this without mention of Canadian output which at 325,000 tons also shattered all previous highs. A further look at sources of supply for the joint purposes of the United States and Britain must of necessity embrace African production, notably from Rhodesia, Transvaal, and the Congo which, with South American output, provided an aggregate of some 2,250,000 tons, an increase of about 30 per cent over the 1929 peak from the same sources and more than 80 per cent larger than in 1918. And it is of more than passing interest that the average price of copper in 1940 was only a shade more than 11½ cents per pound on the domestic market whereas in 1929 the average price exceeded 18 cents.

Or for what significance one may care to attach to it take the industrial prodigy, aluminum, which with ever-widening uses spurred on to be sure by the requirements of total defense, was in 1940 produced in a volume and at a price to the consumer never before witnessed. More fabulously, here is an industry that by the end of 1942 promises a productive capacity about twice that of 1940.

Strategic tin and nickel, too, the sources of supply of which are beyond our own borders have never enjoyed such levels of domestic consumption as those recorded in 1940.

AUTOMOBILE PRODUCTION

To a considerable degree the spectacular production gains in steel and the non-ferrous metals industries had their genesis in the increased demands for automobiles—passenger cars, trucks, and more lately motorized equipment for our streamlined army. Virtually 4,500,000 vehicles rolled off of the assembly lines of our domestic automobile factories in 1940 with a combined wholesale value of about $3,010,000,000; of these, some 3,725,000 were passenger vehicles and about 775,000 were trucks of every description. Excepting only 1937 and 1929, the total output of passenger cars and trucks during 1940 exceeded any other record in history; the gain over 1939 amounted to about 900,000 vehicles or more than 25 per cent. For trucks alone all previous production levels were bested, failure to do this with respect to passenger vehicles being in large part a reflection of the maturity of the industry which increasingly has come to depend upon replacement needs for its custom.

As striking as has been the recovery

in the automobile industry, the 1940 production figures tell but a part of the story, for from now on the industry will play a stellar role in the defense effort for which it has orders in excess of $1,000,000,000 and more to come, covering such military needs as tanks, scout cars, airplane engines, trucks, marine engines, even radio equipment, machine guns and shells. And this takes no account of the employment of idle plant capacity that might be pressed into service to produce small military planes by assembly line techniques as recently projected by the CIO in its so-called Reuther Plan, since rejected, and belied earlier by British experiences.

The year 1940 closed with motor vehicle registrations numbering virtually 32,000,000, a new high record; of this total almost 27,500,000 were passenger vehicles while the remainder represented trucks that roll over the most elaborate network of highways in all history, for the construction and maintenance of which, and for other public functions as well, motor users in 1940 provided tax revenues to local, state, and Federal governments of about $1,775,000,000, a level never before reached.

But for 1941 there are less cheering forebodings; these have their root in the field of labor relations. And in an industry which now gives direct employment to some 450,000 workers, including not alone automobile factories but also body and parts plants, any disequilibrium on this score that might produce strikes and even lockouts is a serious matter for all, the more so now when all hands and heads need to be joined in the larger objective of these crucial times.

AIRCRAFT AND SHIPBUILDING

Itself producing vehicles that are well on the way to annihilating space and time, ironically the 25-year old aircraft industry was stunned by the very speed of the defense effort to which by circumstances it had become destined to contribute an ever more significant role. Youngest of all major industries whose place under the sun is now doubly assured by the requirements of modern warfare, aircraft manufacturing in 1940 soared to a level never before seen and only dreamed of by the more imaginative of yesteryears. Yet the low ceiling imposed by the limitations on productive capacity not only kept production, in terms of units, to an easily comprehensible figure—in terms of military planes alone, something less than 6,000—but worse, there was shown in true focus how fantastic had been the talk of mid-1940 of 50,000 planes a year and even of "1,000 a day."

Pandemonium has lessened and this chiefly because realism has provided and is on the way to further affording the necessary plant facilities with which to produce the needed planes for our own military and those for Britain and other defenders of democracy.

So that now the objective of 40,000 fighting planes of all descriptions by June 30, 1942 has reasonable prospects for fulfillment now that floor space of the entire industry, including planes, engines, propellers and parts, at about 23,000,000 square feet, has in a single year been increased almost ten-fold and promises again to double within 18 months, and now that the number of employees has jumped from about 60,000 in 1939 to upwards of 200,000 with requirements of almost 400,000 to insure accomplishment of the production schedule. And there's a rub, which besides the bottlenecks of tooling can be eliminated only by heroic measures designed to provide the needed skills. Already skilled mechanics are being "made" by aggressive techniques of an Alladin, running all the way from correspondence courses to training schools operated by manufacturers themselves, from public schools to universities, from "scouting" on the part of the industry to offers of attractive bonuses to skilled mechanics to induce migration from the industrial East to the Far West where roughly 40 per cent of the industry is domiciled.

As the year ended, despite earlier

skepticisms, a two-ocean Navy had become our national policy; by drastic reorganization of the Navy the early days of 1941 produced the newer policy of a three-ocean navy to patrol the Atlantic, the Pacific, and the Asiatic waters with billions authorized and yet to come to make the policy effective. Small wonder that our navy yards and even private shipyards were never so busy.

In all, at the 1940 year-end, there were but 23 private shipyards with 83 ways which comprised the entire capacity for the construction of merchant vessels in the United States. Domestic and British needs considered, the shipbuilding capacity of the nation will be materially augmented in 1941, the Neutrality Act of 1939 delimiting combat areas notwithstanding.

CONSTRUCTION

With such demands on industry no surprise was occasioned by the performance of the construction industries in 1940 which rounded out seven full years of recovery since the depression pit of 1933. Giving the best account since 1930 no matter what statistical measure one may use, be it building permits, building contracts, or the broader estimates of the Department of Commerce, construction undertaken in 1940 was still a long way off from the heights reached during the boom years of the 1920's.

Using the figures of the F. W. Dodge Corporation, covering only the reported contracted or work-started projects in the 37 states east of the Rocky Mountains (though admittedly much construction occurred in the 11 western states), the 1940 total approximated $3,965,000,000 an increase of roughly 11 per cent over the total of $3,551,000,000 for 1939. Back in 1930 the corresponding volume was $4,523,000,000, while in 1928, the peak construction year, the volume was $6,628,000,000.

More than half of the dollar increase in construction undertakings as between 1939 and 1940 came from the residential field which, amounting to about $1,575,000,000 in the 37 eastern states, showed an increase of about 18 per cent over the corresponding total of 1939. On a percentage basis the honors went to manufacturing buildings, which, taking no account for machinery and equipment, totaled about $465,000,000 or more than 2½ times the 1939 volume of that type of construction. Even though this be higher than the total for any other year since 1929 it failed by some 15 per cent to scale the 1929 total for manufacturing building construction.

That much more construction, for housing both the military, defense workers, and the remaining civilian population, and for "housing" industry in its new role as the "arsenal of democracy," is needed goes without saying. This seems to assure relatively high construction totals at least through the initial half of 1941, bringing with it sustained and even broadened demands for a myriad of materials and equipments that is the construction industry. But over and beyond this point there stand as monitors factors that sooner or later appear destined to dwarf the current cycle which on historical pattern alone is now well past midway. In the first place, there never has been a time in the long history of building statistics when the industry has been able to make recovery eight years in a row, even though it be true that the rising phase of a given cycle usually consumes about 11 years before the broad reverse sets in. Secondly, building costs are now, in an increasing number of localities, at new high levels, which will tend to put a ceiling over private construction projects other than those tied intimately to defense needs. In the third place, there is the plaguing question of priorities, for both materials and men, that may yet have to be invoked against the construction industries to insure the success of our defense economy.

MACHINERY AND EQUIPMENT

No longer is it Bread and The Games. In this age it has become machines and equipment . . . tools, dies, fixtures and jigs. Gearing for 1941, the machine tool industry anticipates a production volume of about $650,000,000, this as contrasted with a total of about $425,000,000 for 1940; if attained, it will mean a volume more than three times that of 1937. Being booked months ahead, almost entirely for purposes of defense, the amount of business that can be accepted from non-defense industries is infinitesimal, and this despite an upping of about 50 per cent in the capacity of the industry during 1940 and the farming out of parts and sub-assemblies to many of the nation's lesser machine shops.

TANKS AND ORDNANCE

Pity is that it has taken a grave national emergency to arouse the nation from its lethargy. And slowly the facts emerge. Take tanks, as 1940 ended about 250 tanks were rolling off the assembly lines per month against orders that were placed in an amount not far below the $300,000,000 mark, ranging in unit size from the 13-ton light tank to the 45-ton land battleships. What grief this has entailed all along the line, for designs, for tools, for gun mounts, for caterpillar tracks, for rubberizing to eliminate noise and road-damage, for armor-plating to provide the most advanced ballistic properties, only the military, the Defense Commission and the manufacturers have been called upon to face.

Or take the Garand automatic rifle for which some 400,000 are on order to supplement the Springfield rifle for which some 1,300,000 are on order. Though the Garand is simplicity itself from the standpoint of the soldier having but 74 parts as compared with 92 for the Springfield, it requires 1,386 special tools, 79 punches and dies, 1,766 fixtures and 2,345 gauges for the manufacture of the automatic Garand rifle.

Then there are the machine guns, trench mortars, automatic pistols, light and heavy artillery pieces to say little of the coast defenses, air bases hangars, breakwaters, piers, even the 210 cantonments at a cost of $631,000,000 that are being reared to house our army of 1,200,000 men, all this to give but a glimpse of the new economy that is now at play.

EMPLOYMENT AND WAGES

Better times, whatever the causes, have brought upwards of 1,000,000 idle workers back to the payrolls of non-agricultural industries, exclusive of the military. By the end of 1940, total estimated employment in these fields amounted to about 36,700,000 for an increase of about 3 per cent over the total for December, 1939, and within striking distance of the peak figures during the summer of 1929. Greatest gains in industrial employment naturally occurred in those areas where defense contracts were heaviest, including the Pacific Coast, the Ohio Valley, the Midwest, the Atlantic seaboard and the New England regions. And with this phenomenon unemployment as a problem of American life has passed beyond the stage of esoteric discussion and is increasingly engaging the attention of dialecticians generally. For whether the total of our unemployed workers be 3,000,000 or 8,000,000 by whatever definition or method of estimate, the fact yet remains that there is still something radically wrong with an economy that is pressed to its outer limits of capacity and yet fails to provide gainful occupation for all who are ready, willing, and able to work.

Indicative chiefly of a fuller workweek within limits of the Wage and Hours Law, factory payrolls, as 1940 ended, were roughly 13 per cent higher than for December, 1939, as contrasted with a gain between the two periods in the number of employees of only about 7 per cent. Against this performance may be set the records for other non-agricultural industries such as wholesale trade where payrolls were up by about 2 per cent though employment was virtually unchanged; retail trade, where payrolls were up by about 4 per cent and employment for servicing the largest consumer demand since that for 1929 was up from 1939 by about 3 per cent; power companies, where payroll payments for

December, 1940 were higher by about 4 per cent than a year earlier, and employment showed a fractional decline; building construction, where oddly enough, a gain in payroll payments over the preceding year of some 18 per cent was bested by the employment increase of about 22 per cent.

And yet as 1940 closed Federal work relief programs, though measurably lower than a year earlier, were called upon to supply jobs to around 2,100,000 workers, exclusive of better than 400,000 student work program jobs provided by the National Youth Administration. Further, as in earlier years when hopes ran high, the long-standing breach in organized labor as between the AFL and the CIO was no nearer a healing as 1940 faded into history. Though there be more, here are two problems on the labor front that in the light of our changed emphasis on preparedness should call forth that statesmanship for which we have vaunted. For now it should be clear as never before that no objective of scheduled production can be attained with the required speed and efficiency so long as the seeds for industrial strife and social discontent are permitted to germinate.

Any assessment of these desiderata must of necessity explore amply and without bias the wisdom of a 40-hour work-week at a time when the very foundations of our political system are in such urgent need of material shoring. For besides the experiences that already have proved so devastatingly costly to France and England, we see in our very backyard—in Canada though actively engaged in the war—an almost unbelievable lack of coordination between manpower and machinepower, out of which alone can come any realistic hope for success in a life-and-death struggle.

INDUSTRIAL EARNINGS AND DIVIDENDS

Despite the rise of industrial activity to unexampled levels, industrial earnings generally, though greater by not far from 50 per cent than in 1939, failed to top the 1929 level. In great part this was due to the impacts of taxation which promises to be even heavier during 1941.

The largest percentages of rise over 1939 occurred in the machine tool, factory equipment, steel and metal products industries wherein earnings trebled or more. For aircraft manufacture earnings about doubled. But in dollars, the steel industry, with a gain roughly of $150,000,000, stole the earnings show. Curiously enough, of 20 major industrial classifications, food and drink lines as a group were unable to show any rise in earnings as contrasted with 1939.

CONCLUSION

Organized industrial research continued apace, even quickened, having involved in 1940 an expenditure of some $225,000,000 for an increase of perhaps 3 per cent over the amount employed in 1939 for all basic production research. Needless to say the defense effort bids fair to increase the emphasis on industrial research and especially as to synthetics. The advanced work in these respects on the part of German, Russian, Italian, Japanese, even British scientists in such fields as coal and petroleum products, metals, plastics, paints, explosives, motor fuels, chemicals, textile fibers, hydrocarbons, cellulose products, even foods, can only serve to spur us on to yet higher planes of accomplishment.

That we have the gumption and genius is earnest of still greater comforts and luxuries of life when once we will have learned how to live through these unbelievably barbarous days wherein man's scientific prowess is being diverted to devilishly destructive purpose. It takes more than Nylon, the wonder-derivative of coal, air, and water and more than Neoprene, the amazing product from coal, limestone, and salt, of which America fortunately has inexhaustible supplies, to insure independence from foreign controls, economic, political, ideological. More than an FM radio set or television to guarantee that contentment among 132,000,000 inhabitants who, one way or another, have begun to question increasingly the efficacy of democratic government in a seeming world drift toward totalitarianism.

In this age when billions in expenditures are freely offered as the ransom for freedom is it not time to begin to assay unemotionally and objectively the true significance of liberty and the means by which it can be secured within our system to our people? For after swords will once again have been beaten into plowshares will come the recurring problems of over-capacity, widespread unemployment, and the myriad other manifestations of dislocations and readjustments, made now the more perplexing by our changed economic emphasis and our rapid approach to a stationary overall population.

THE UNITED STATES TARIFF COMMISSION

By Raymond B. Stevens

Chairman, United States Tariff Commission

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BASIC FUNCTIONS OF THE COMMISSION

The basic functions of the Tariff Commission defined in the Act of Congress establishing the Commission (1916) were reenacted in the Tariff Act of 1930, which defines the present functions of the Commission, and charges it with the duty of investigating, among other matters, the administration and fiscal and industrial effects of the customs laws, the tariff relations between the United States and foreign countries, commercial treaties, and "conditions, causes, and effects relating to competition of foreign industries with those of the United States." This broad authority and responsibility to investigate matters of international commercial policy, for the information of Congress, the President, and other departments of the Government, is particularly important in periods of international disturbance and transition. Following the first World War the Tariff Commission gave special attention to the problems created by the resumption of trade relations which had been interrupted by the war, such as the problem brought about by depreciated exchange, and to such matters as commercial treaties and colonial tariff policies. Now, in another disturbed era in the world's history, the work of the Commission may be broadly characterized as an effort to bring together the body of economic, statistical, and technical data required for the formulation of national commercial policy, not only during the chaos created by war, but in preparation for the period of trade reconstruction to follow. As a background for this work, the Commission has an intimate knowledge of the industries and trade of this country, and of trade and trade policies of foreign countries gained through its 24 years of investigation and research.

CONTRIBUTION TO NATIONAL DEFENSE

Because of the large body of technical data on the production of important commodities, and on the nature and sources of imports, which the Commission has in its possession, it has been able to contribute substantially to the national preparedness program. Cooperating closely with the Advisory Commission on National Defense, the Commission has been represented on technical advisory committees, has loaned experts, and has furnished a great deal of statistical, economic, and technical data. In addition it has made many special studies on strategic, critical, and essential materials for both the Defense Commission and the Army and Navy Munitions Board, and has furnished information on industrial capacity and requirements, specifications of commodities, probable "bottlenecks" in production, figures in regard to stock piles, and data to be used in estimating probable price movements and effect of the defense program on consumers.

Another undertaking on which the Tariff Commission has rendered assistance is in the preparation of an inventory of cost information made by the Bureau of Research and Statistics of the Defense Commission. The purpose of this inventory is to ascertain the availability in the various government departments of cost data with respect to individual commodities. Because of the costs obtained by the Commission under the flexible provisions of the tariff act and in the course of its general studies, there is available in the files an unusually large amount of cost data, and the preparation of an index to this material has required considerable work.

WAR'S EFFECT ON IMPORT TRADE

Late in 1939 the Commission issued a report intended as a basis for estimating changes in the import trade which would result from the war. This year, at the end of the first year of the war in Europe, the Commission has issued a report entitled "War and Its Effect on United States Imports." The current report summarizes the actual effect of 12 months of hostilities on this country's ability to obtain foreign supplies of materials. It is a striking fact that imports of most goods have continued in substantial volume. In regard to strategic and critical goods, the policy of the National Defense Commission to accumulate reserve supplies, and the desire of business to accumulate emergency stocks, have resulted in the highest imports on record of manganese, rubber, tin, and other essential commodities.

With the invasion of the Low Countries in May 1940 and later with the fall of the Netherlands, Belgium, and France, there was a sharp contraction in trade with these areas. For the most part the articles imported from these countries were luxury goods, such as champagne, wines, perfumes, or articles which can be or are produced in the United States in large volume, such as starches, vegetable oils, and the like. Most striking from the point of view of interference with normal United States supplies is the situation in regard to flax and linen articles. Most of the linen imported by the United States has been made in Ireland from flax obtained in European countries. War conditions have already caused a sharp decline in this trade and the indications are that there will be further difficulties. In a similar category are certain classes of high grade calfskins and some other articles which had been obtained from the northern European countries.

LATIN AMERICAN TRADE

One of the principal current interests growing out of the definite policy of Western Hemisphere defense is the cultivation of closer economic relations with Latin America. The Tariff Commission is represented on the Interdepartmental Committee on Cooperation with American Republics, and as a contribution toward the solution of this current problem it is now completing a study of the foreign trade of Latin America. Part I of the report entitled "Trade of Latin

America with the World and with the United States," deals with Latin America as a whole; it contains a short description of the Latin American area, a consideration of the commercial policies of the Latin American countries, an examination of the total trade of Latin America with the world and with the United States, and an analysis of special problems in the foreign trade of Latin America, including those arising out of the present European war. Part II, entitled "Commercial Policies and Trade Relations of Individual Latin American Countries," consists of 20 separate sections and is a survey of the commercial policy and the foreign trade of each of the 20 Latin American countries, with special emphasis on the trend, composition, and destination of exports, and the trend, composition, and sources of imports. In addition, each section contains an analysis of the trade of the United States with the particular country. Part III, issued in two volumes, is entitled "Selected Latin American Exports," and deals individually with approximately 30 Latin American export commodities for each of which there is a discussion of production, exports, trade barriers, competitive conditions, and the effects of the European War.

In an entirely new departure in the Commission's general program, Part I of this report entitled "Trade of Latin America with the World and with the United States," was translated into Spanish and made available for use at the Habana Conference.

A Graphic Analysis of the Trade of Latin America was also prepared. The charts and maps in this report portray the geographic distribution of the imports and exports, as well as other pertinent features of the foreign trade, of the Latin American countries. The Commission also issued, during the year, a *Reference Manual of Latin American Commercial Treaties,* which lists the commercial treaties and agreements negotiated by these 20 countries throughout their entire history.

TRADE POLICIES AND REGULATIONS

Under its general authority to investigate broad developments in commercial policy, the Commission has made a study of Italian commercial policy and foreign trade, 1922 to 1939. The Italian report presents a comprehensive analysis of Italy's system of trade and exchange control and of Italian foreign commerce from the beginning of the Fascist Regime in 1922 to September 1939, when the publication of trade statistics was suspended by the Italian Government. The Commission is also making a comprehensive analysis of the recent trade policies and practices of Germany and Japan.

Another report completed by the Commission and soon to be issued is entitled "Regulation of Imports by Executive Action." Resort to quotas, clearing agreements, and exchange control as methods of regulation of imports in many countries has been one of the outstanding developments of recent years. These instruments of commercial policy are controlled almost invariably by the executive branch of the respective governments, and the way in which they are used, and the results of such action, are among the most important current topics in the field of international commercial policy. The Commission's report will contain a brief summary of developments in the most important countries.

INDUSTRIAL SURVEYS

In 1935, the Commission inaugurated a new program of industry surveys. These commodity studies contain information gathered by the Tariff Commission's experts over a period of years. Seven of these comprehensive industry studies were published in 1937 and 1938—Chemical Nitrogen, Flat Glass, Sodium Sulphate, Mica, Iron and Steel, Cutlery Products, and Synthetic Resins, and two in 1939—Incandescent Electric Lamps, and Grapes, Raisins, and Wines. A survey on Pocket Cutlery was issued, in multilithed form, as a supplement to the printed survey on Cutlery Products, and its contents were summarized in the annual report for 1938. A survey on Earthen Floor and Wall Tiles will soon be off the press. Two surveys—Starches and Dextrines, and Glues, Gelatins, and Related Products—were completed in 1939 and a limited number of mimeographed copies were distributed to interested parties. The printed editions are now available for general distribution. Summaries of these two surveys and of the survey on Silverware which was published in May, 1940, follow.

STARCHES AND DEXTRINES

The starches consumed in greatest quantities in the United States are domestic cornstarch and imported tapioca and sago. Tapioca and sago starches were bound duty-free in the trade agreement with the Netherlands. The larger part of the domestic output of cornstarch is used by the producing concerns themselves for conversion into corn sirup and corn sugar. Starches sold as such, both domestic and imported, are used in food, textiles, paper, and adhesives, in the laundry, and for a number of minor industrial purposes. In most of these industries, competition exists in varying degrees between domestic and imported starches. In the laundry and in plywood, competition is very limited.

The domestic production of starches for all purposes, including conversion into sirup and sugar, declined from about 3,000,000,000 pounds in 1929 to 2,000,000,000 pounds in 1935, then increased to 2,700,000,000 pounds in 1939. Domestic starches made for sale, including export, amounted to about 900,000,000 pounds in 1929, declined to about 500,000,000 pounds in 1932, but increased to 1,000,000,000 pounds in 1939. Imports of starches were about 200,000,000 pounds in 1929, declined for a period, and then increased to a maximum of nearly 500,000,000 pounds in 1937. In the following year imports decreased by about one-half, but in 1939 they again increased to over 400,000,000 pounds. Exports were over 200,000,000 pounds in 1929, declined markedly for several years, but increased to nearly 200,000,000 pounds in 1939. The production of and trade in dextrines are small compared with starches.

GLUES, GELATINS, AND RELATED PRODUCTS

This survey analyzes data gathered by the Tariff Commission on all commodities dutiable under paragraph 41 of the Tariff Act of 1930. Several of these commodities have been the subject of investigations by the Commission under the powers conferred on it by the Tariff Acts of 1922 and 1930. On some of them, the rates of duty have been modified under the provisions of Section 336 (the flexible provision), or have been either modified or bound against increase under the provisions of Section 350 (the Trade Agreements Act) of the Tariff Act of 1930. Although the survey was prepared with a view to its possible helpfulness in future tariff action, it contains statistical and other data of interest not only to producers but to those in the trade and those concerned with use of such commodities.

The United States is the world's largest producer of glue. The several branches of the domestic industry have sufficient installed capacity to supply our domestic requirements. Beginning with 1927, the first year for which production data concerning each of the individual glues were available, total domestic production has been in excess of 200,000,000 pounds annually, and reached a peak of nearly 365,000,000 pounds in 1937. Animal and vegetable glues account for about 96 per cent of total production. Beginning with 1929, the production of vegetable glues has exceeded that of animal glues and, in 1937, it was nearly double that of animal glues. Compared with the output of either animal or vegetable glue, the production of fish and casein glues has been both small and fairly constant.

The United States is also an important world producer of gelatins. In

1938, with plants operating at but 72 per cent of capacity, domestic production of edible gelatin was nearly 22,000,000 pounds. Not only has the domestic gelatin industry sufficient installed capacity to supply total domestic requirements for edible gelatin, but it has so successfully solved the technical problems involved in the manufacture of photographic gelatin that the United States is now independent of foreign producers.

SILVERWARE

The survey on the silverware industry shows that the United States is the world's leading producer and consumer of silverware, as well as an important market for certain types of foreign-made goods. Silverware valued at $52,000,000 was produced in the United States in 1937, and foreign-made goods valued at approximately $2,000,000 were imported in that year. United States exports in recent years have amounted to nearly $500,000 annually.

Approximately two-thirds of domestic production in terms of value consists of silver-plated ware and the remainder of sterling silverware. Silver-plated ware is particularly adapted to mass production methods, and the large United States plants engaged in its manufacture are highly mechanized. Imports of silverware into the United States consist in large part of solid silver articles and include distinctive types of modern ware, antiques, and reproduction of antiques. About one-half of the silverware imported into the United States is antique ware made prior to 1830. Exports of United States products consist principally of silver-plated ware.

In the trade agreement with the United Kingdom, effective Jan. 1, 1939, the duty on most modern sterling silverware was reduced from 65 to 50 per cent *ad valorem* and on silver-plated ware from 50 to 35 per cent. In addition, the free entry of antique silverware (made prior to 1830) was guaranteed for the duration of the agreement. In trade agreements with Canada, France, and Cuba, reductions were obtained in duties on United States silverware imported into those countries.

The report contains an analysis of United States production and trade in silverware and of the tariff problems affecting this trade. It discusses the materials used in the production of solid silver and silver-plated ware, the processes by which these wares are made, and the methods of their distribution. In addition, it contains information dealing with production and trade in foreign countries, notably the United Kingdom, Denmark, Germany, and France.

SYNTHETIC ORGANIC CHEMICALS

The Commission issued its customary report on the Production and Sales of Synthetic Organic Chemicals in the United States. Begun in 1917 this report has been made annually by the Tariff Commission since that time. The Commission also issued a statistical analysis of certain classes of chemicals dutiable under paragraph 5 of the Tariff Act of 1930, which were imported in 1938 through the New York customs district. These are the so-called basket classifications, composed of miscellaneous related chemical and medicinal products not specially provided for elsewhere in the tariff act.

WOOD PULP

The Commission continues to follow closely the wood pulp situation. Senate Resolution No. 160, 76th Congress, adopted Aug. 1, 1939, directed the Commission to investigate and report on the competition between domestic and imported wood pulp and pulpwood. The Commission instituted such an investigation; but on the outbreak of war the situation changed, imports fell off, and the Commission advised the Senate that, in the absence of further instructions, the investigation would not be completed for the time being, but that a continuing study of the situation would be made. Since March 1940, there have been practically no imports of wood pulp from Europe; imports from Canada have increased somewhat, and domestic production has increased.

TRADE AGREEMENTS

During the past year, the work of the Tariff Commission under Section 350 of the Tariff Act of 1930, as amended (the Reciprocal Trade Agreements Act) has been small compared with other phases of its work, only one new trade agreement having been completed since the outbreak of the European war. A large amount of material on the trade agreements program was prepared, however, when the Congress was considering the extension of the Trade Agreements Act early in 1940.

The data prepared covered each of the approximately 1,200 items on which concessions have been made by the United States in all the agreements negotiated to date. This material was submitted to the Committee on Finance of the Senate during the hearings on the Reciprocal Trade Agreements Act. Information was given on the amount of each concession and the date when made, the equivalent *ad valorem* rate on imports of each commodity before and after the concession, statistics on the United States imports of the commodity in years prior to, and following, the concessions, both from countries to which the concession was granted and in total, and data on the production of the commodity in the United States, the ratio of imports to domestic consumption, and the comparability of the types or grades imported with those produced in the United States. With such information, persons interested in any particular concession may judge its tangible results.

At the request of several members of the Congress, the Commission also prepared a large amount of material for insertion in the record of the hearings before Ways and Means Committee considering the Extension of the Reciprocal Trade Agreements Act. This material includes statistical tables showing the concessions made under the trade agreements, an analysis of bilateral commercial agreements of foreign countries, information on the nature and extent of export controls existing in countries with which the United States has negotiated trade agreements, comparative wage rates in the principal countries, employers' contributions under social insurance systems in selected foreign countries, benefits derived by Japan from trade agreement concessions made by the United States, and price data on farm commodities.

The Tariff Commission has also prepared a number of studies of groups of commodities affected by the Trade Agreements. Each study presents factual data on United States production, imports, and exports, of a related group of commodities, together with an itemization of import and export concessions. These studies supplement the more detailed consideration, by individual concession items, mentioned above.

The Commission has continued its assistance to the Committee for Reciprocity Information, whose chairman is Oscar B. Ryder, Vice Chairman of the Tariff Commission. The Committee for Reciprocity Information consists of representatives of the Departments of State, Treasury, Agriculture, and Commerce, and of the Tariff Commission. The concession on silver or black fox furs, in the second trade agreement between the United States and Canada, was the subject of a report to the Trade Agreements Committee, and a supplementary agreement which modified the concession on silver or black fox furs was signed on Dec. 30, 1939.

Under Section 22 of the Agricultural Adjustment Act of 1933, as amended, and in response to a request by the President dated Dec. 13, 1939, the Tariff Commission made an investigation to determine whether wheat and wheat products were being imported or were practically certain to be imported under such conditions and in sufficient quantities as to render or tend to render ineffective or materially interfere with the program undertaken with respect to wheat under the Soil Conservation and Domestic Allotment Act, as amended, or to reduce substantially the amount of any product processed in the United States from wheat. The Commission has not made a report on this investigation, but has continued to study the changing developments in the wheat situation. The Commission has also made a continuing study of the developments with reference to cotton, cotton waste, and cotton textiles, the subject of a previous investigation under Section 22 of the Agricultural Adjustment Act.

Activity under Section 336 of the Tariff Act of 1930, the so-called flexible provision, has shown a tendency to increase. In February 1940, an application was filed for an investigation looking toward an increase in the duty on imports of cotton cloth. This application, together with one for an increase in duty on cotton fishing nets and netting, is pending. An application for an increase in the duty on clays or earths artifically activated was dismissed by the Commission in April 1940. Senate Resolution No. 200, 76th Congress, adopted Sept. 27, 1940, directed the Tariff Commission to make an investigation, under Section 336, of the cost of production of crab meat. On Oct. 3, 1940, the Commission ordered such an investigation, and it is now in progress, (December 1940).

FOREIGN DISCRIMINATION

Section 338 of the Tariff Act of 1930 authorizes retaliatory action for discrimination by foreign countries against the commerce of the United States. The law directs the Tariff Commission to advise the President regarding discriminations by foreign countries against the commerce of the United States, and alleged discriminations are receiving active attention. Under this section the President may impose new or additional duties, not to exceed 50 per cent *ad valorem* or its equivalent, on any or all products of any foreign country which discriminates against the commerce of this country, or he may even exclude entirely from importation into the United States any products of any country that persists in discrimination. The Commission attempts to keep advised at all times regarding the acts of foreign countries which might come within the meaning of Section 338.

MISCELLANEOUS ACTIVITIES OF THE TARIFF COMMISSION

Interdepartmental Cooperation.—The Commission continues its cooperation with other government departments—an important aspect of its work in previous years. One of the outstanding developments in the consideration of international commercial problems by the government has been the growth in the past few years of interdepartmental cooperation. Several agencies of the government have functions which relate to problems of foreign trade. In as much as independent action by different departments and commissions might produce conflicts in policy, cooperative consideration of problems has been encouraged. The Executive Committee on Commercial Policy is one of the principal agencies through which cooperative action is instituted, and on this the Tariff Commission is represented. Problems of import and export trade, transportation and finance, thus receive unified consideration. In the solution of many problems of commercial policy, the economic, statistical, and technical data prepared by the Commission have been of material value. In addition the Tariff Commission is represented on various other committees having to do with international commercial policy.

Cooperation with Latin America.—The Commission has taken an active part in the consideration of measures to promote cooperation with Latin America, in addition to the preparation of its report on the Foreign Trade of Latin America. The Interdepartmental Committee on Cooperation with the American Republics, of which Commissioner Edgar B. Brossard is a member, has approved a plan for the selection of four men from South American countries, to be assigned to the Tariff Commission to study the methods of the United States Government in dealing with matters of international commercial policy. This plan is similar to the one which has been in effect with respect to United States college students. Under the plan a limited number of students are assigned each year to various government departments, in an unpaid status, in order that they may gain experience and information in public administration. These men, of course, do not have access to confidential material.

Temporary Special Service.—Upon requests of the Treasury, the Department of Commerce, the Department of the Interior, and the House of Representatives' Committee on Internal Migration, as well as the Advisory Commission on National Defense, experts from the staff of the Commission were loaned for temporary special service. A considerable amount of staff time has been expended on projects carried out in collaboration with the Division of Statistical Standards of the Bureau of the Budget, the Labor Department, the Maritime Commission, and other government agencies. A member of the Commission's staff, Harold D. Gresham, who has been loaned to the Paraguayan Government at its request, has continued his study at Asuncion of the customs procedure of that country.

Work with W.P.A.—The Commission continues to direct offices under the Works Progress Administration in Richmond, New York City, and Washington. The staff at the Richmond office has been considerably reduced in number. Through the work of the Richmond and New York offices, a large amount of statistical data, not heretofore available, particularly with reference to imports in the so-called basket or catch-all paragraphs of the tariff, has been obtained for the use of the Tariff Commission's experts and interested persons in various branches of industry and trade. The Washington project has done a large amount of work in reorganizing certain of the Commission's files.

ADMINISTRATION OF THE TARIFF LAWS

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GENERAL

Problems which arose in connection with the European war loomed large on the horizon of the Customs Service during the past year. Not only was there a large increase in the number and value of export shipments due to war supplies sent to belligerent nations but also, as the result of the Neutrality Act and regulations, the meticulous examination of the export documents and the physical inspection of many actual shipments were necessitated in order to forestall the exportation of prohibited commodities. In addition, it was necessary for customs officers to check carefully outgoing passenger traffic to insure conformance with passport regulations, to examine with particular care the clearance papers of all vessels in order to make sure that all additional requirements resulting from the war were complied with, and frequently to search outgoing vessels to prevent them from involving this country in a violation of its neutrality. Although these somewhat unusual activities necessitated the assignment to the export activities of a much larger number of officers than in normal times, all of the usual functions in connection with the importation of merchandise were continued and, somewhat surprisingly, there was comparatively little diminution in these activities, the aggregate duties collected being 9.6 per cent greater than during the previous year and the total number of entries of merchandise being only 12.6 per cent smaller, despite the elimination of one European country after another from trade with the United States.

CUSTOMS COLLECTIONS

Aggregate collections by the Customs Service, after declining for two years, turned upward during the fiscal year 1940. A total of $383,279,575 was collected in 1940 compared with $350,395,944 during the previous year. Of these amounts, $350,851,561 and $321,409,995 in 1940 and 1939, respectively, constituted actual customs revenue, while the remainder represented chiefly internal revenue taxes on imported alcoholic beverages, together with the comparatively small collections of tonnage taxes, head taxes on immigrants, etc.

Customs receipts fluctuated during the year within slightly wider limits than during the preceding year, the peak month being in September 1939 when the usual seasonal rise was augmented by heavy importations and warehouse withdrawals at the beginning of the European conflict, due apparently to the expectation of a rise in domestic prices in consequence thereof. Prompt action by the President in the suspension on Sept. 13, 1939 of quota limitations on sugar importations caused the discontinuance of the heavy withdrawals during the balance of that month, since the suspension of the quotas was accompanied by the increase in rates of duty to those prevailing prior to the establishment of the sugar quota. The resumption of the sugar quota on Dec. 26, 1939 and the return to the lower rates of duty provided in the Cuban trade agreement of 1934 resulted in large sugar withdrawals during the remainder of December to replenish the somewhat depleted stocks. This caused December collections to be larger than for any month except September, a condition seldom found in past customs history. There was, on the other hand, no seasonal rise of customs collections in the spring.

COMMODITY REVENUE TREND

Although total customs collections increased in 1940, smaller revenues were derived from 11 of the 15 schedules of the tariff act than during the previous year. Duties on sugar were 50 per cent larger and those on wool 66 per cent larger than in 1939, while smaller increases occurred in the case of duties on metals and beverages. Commodities which were free of duty under the Tariff Act of 1930 but which were taxed under the various subsequent revenue acts also yielded a slightly larger revenue than in 1939, due to increased collections on imports of crude petroleum and copper, which more than offset smaller receipts from taxes on imports of expressed and extracted oils.

REVENUE TREND BY COUNTRIES

The adverse effect of the European war on customs revenue in 1940 appeared chiefly in the case of duties on imports from Europe, which yielded only $130,709,479 in 1940, compared with $148,664,224 in 1939. Decreases in duties collected on merchandise from Germany, Czecho-Slovakia, and Poland were particularly large, and smaller declines appeared in duties on imports from Italy, Greece, The Netherlands, Hungary, Bulgaria, and Denmark. Increased collections during the earlier months of the fiscal year on imports from Belgium, Norway, Sweden, and Yugoslavia, on the other hand, were sufficient to offset the subsequently diminished collections on their merchandise after the curtailing of their export markets as a result of the enlargement of the area of the conflict.

The diminished revenues on imports from Europe was more than offset by larger revenues from imports from the other areas. Imports from Cuba were by far the most important

DUTIABLE AND TAXABLE IMPORTS FOR CONSUMPTION

(Fiscal Years 1939 and 1940)

Tariff Schedule	Value		Duties and Import Taxes (1)		Percentage Increase or Decrease (−)	
	1939	1940	1939	1940	Value	Duties
Chemicals, oils, and paints	$57,368,627	$51,192,559	$21,199,485	$16,526,952	−10.8	−22.0
Earths, earthenware, and glassware	25,532,715	23,808,317	11,144,248	9,920,577	−6.8	−11.0
Metals and manufactures	78,422,702	93,373,880	23,257,203	27,301,938	19.1	17.4
Wood and manufactures	15,131,852	17,266,419	2,216,492	1,841,665	14.1	−16.9
Sugar, molasses, and manufactures	76,910,369	110,543,434	37,690,323	57,723,437	43.7	53.2
Tobacco and manufactures	37,686,597	36,165,617	25,709,004	22,634,415	−4.0	−12.0
Agricultural products and provisions	164,246,322	169,932,295	56,008,920	53,062,864	3.5	−5.3
Spirits, wines, and other beverages	58,093,406	62,522,790	33,249,541	37,121,626	7.6	11.6
Cotton manufactures	25,774,976	25,408,380	9,573,951	9,102,583	−1.4	−4.9
Flax, hemp, jute, and manufactures	52,046,383	62,117,209	11,546,278	10,430,813	19.3	−9.7
Wool and manufactures	37,847,815	64,350,618	25,692,091	42,690,169	70.0	66.2
Silk manufactures	5,766,214	4,987,905	3.068,704	2,616,091	−13.5	−14.8
Manufactures of rayon or other synthetic textiles	(2) 8,655,248	8,202,982	(2) 2,794,055	2,460,923	−5.2	−11.9
Pulp, paper, and books	12,031,449	9,572,453	2,403,766	1,719,837	−20.4	−28.5
Sundries	129,717,872	127,264,756	36,057,511	33,400,900	−1.9	−7.4
Dutiable under section 466, Tariff Act of 1930	257,187	275,221	270,980	273,091	7.0	.8
Free list commodities taxable under the Revenue Act of 1932 and subsequent acts	34,667,484	52,724,328	10,212,600	11,177,787	52.1	9.5
Total	(2) 820,157,218	919,709,163	(2) 312,095,152	340,005.668	12.1	8.9

(1) Taxes collected on dutiable commodities under the revenue acts and the Sugar Act of 1937 are included in appropriate schedules.
(2) Revised.

source of customs revenue in 1940, the increased customs revenue being sufficient in itself to offset the decreased revenue from European merchandise. Cuba's importance in 1940, however, was largely due to the suspension of the quota and the consequent increase in the rates of duty on Cuban sugar. Large increases in customs revenue was also derived from imports from the Union of South Africa, Netherlands East Indies, Chile, and Uruguay. The increased revenue on imports from Uruguay and the Union of South Africa was due to an increase in receipts of wool from those regions, and the increase in the case of Chile to larger importations of

ADMINISTRATION OF THE TARIFF LAWS

DUTIABLE IMPORTS FOR CONSUMPTION BY COUNTRIES

(Fiscal Years 1939 and 1940)

Country	Value		Duties		Percentage Duties to Values		Percentage Increase or Decrease (−)	
	1939	1940	1939	1940	1939	1940	Value	Duties
Europe:								
Belgium	$ 41,573,794	$ 45,506,262	$ 7,905,736	$ 8,578,817	19.0	18.9	9.5	8.5
Bulgaria	1,522,649	1,378,523	916,771	758,274	60.3	55.0	−9.5	−17.5
Czecho-Slovakia	16,409,178	363,935	6,345,507	186,271	38.7	51.2	−97.8	−97.1
Denmark	3,336,483	2,375,160	835,193	661,603	25.0	27.9	−28.8	−20.8
France	44,265,236	43,246,842	18,128,118	19,124,320	41.0	44.2	−2.3	5.5
Germany	54,991,905	13,453,821	19,070,521	5,068,257	34.7	37.7	−75.5	−73.4
Greece	13,616,745	14,479,800	7,677,600	7,522,414	56.4	52.0	6.3	−2.0
Hungary	3,717,252	3,255,044	1,025,075	827,571	27.6	25.4	−12.4	−19.3
Ireland	859,105	952,765	385,927	533,443	44.9	56.0	10.9	38.2
Italy	32,952,913	30,919,041	14,327,842	12,747,928	43.5	41.2	−6.2	−11.0
Netherlands	20,909,955	16,741,405	6,761,640	3,627,373	32.3	21.7	−19.9	−46.4
Norway	8,594,989	10,884,164	2,904,529	2,989,815	33.8	27.5	26.6	2.9
Poland	13,287,565	3,513,045	2,478,226	694,002	18.7	19.8	−73.6	−72.0
Portugal	1,743,493	2,225,310	657,175	858,096	37.7	38.6	27.6	30.6
Spain	7,730,277	9,144,058	2,817,881	3,302,129	36.5	36.1	18.3	17.2
Sweden	7,409,967	7,837,472	1,722,003	1,924,535	23.2	24.6	5.8	11.8
Switzerland	23,402,863	28,087,520	9,555,193	11,846,418	40.8	42.2	20.0	24.0
Union of Soviet Socialist Republics	6,986,297	8,429,621	2,102,125	2,951,551	30.1	35.0	20.7	40.4
United Kingdom	97,167,886	105,243,962	40,353,247	44,020,551	41.5	41.8	8.3	9.1
Yugoslavia	2,275,902	2,686,300	1,231,293	1,318,024	54.1	49.1	18.0	7.0
Other countries	5,173,081[1]	3,209,429	1,460,622[1]	1,168,087	28.2	36.4	−38.0	−20.0
Total Europe	$407,927,535[1]	$353,933,479	$148,664,224[1]	$130,709,479	36.4	36.9	−13.2	−12.1
North and Central America:								
Canada	$ 88,140,466	$119,102,340	$ 18,890,384	$ 20,284,082	21.4	17.0	35.1	7.4
Cuba	77,127,750	116,183,023	37,869,352	60,589,808	49.1	52.2	50.6	60.0
Dominican Republic	1,963,335	1,885,558	1,946,523	1,291,283	99.1	68.5	−4.0	−33.7
Mexico	12,331,349	19,199,094	7,059,476	8,208,962	57.2	42.8	55.7	16.3
Netherlands West Indies	6,866,661	10,533,154	1,626,563	1,772,692	23.7	16.8	53.4	9.0
Other countries	4,605,998	3,962,624	1,613,808	918,263	35.0	23.2	−14.0	−43.1
Total North and Central America	$191,035,559	$270,865,793	$ 69,006,106	$ 93,065,090	36.1	34.4	41.8	34.9
South America:								
Argentina	$ 37,203,424	$ 47,233,156	$ 17,752,947	$ 21,340,331	47.7	45.2	27.0	20.2
Brazil	10,318,205	12,028,912	3,446,774	3,086,584	33.4	25.7	16.6	−10.5
Chile	1,358,832	3,398,341	525,366	1,385,961	38.7	40.8	150.1	163.8
Peru	2,921,551	4,636,483	3,381,059	3,920,152	115.7	84.6	58.7	15.9
Uruguay	6,265,119	12,480,797	4,043,581	8,134,724	64.5	65.2	99.2	101.2
Venezuela	15,649,250	22,187,827	4,751,593	4,457,781	30.4	20.1	41.8	−6.2
Other countries	6,252,492	7,084,002	1,227,240	1,457,590	19.6	20.6	13.3	18.8
Total South America	$ 79,968,873	$109,049,518	$ 35,128,560	$ 43,783,123	43.9	40.1	36.4	24.6

(Fiscal Years 1939 and 1940)

Country	Value		Duties		Percentage Duties to Values		Percentage Increase or Decrease (−)	
	1939	1940	1939	1940	1939	1940	Value	Duties
Asia:								
British India	$ 34,144,818	$ 47,968,912	$ 6,884,325	$ 7,739,843	20.2	16.1	40.5	12.4
China	22,061,353	27,082,012	10,263,978	11,648,001	46.5	43.0	22.8	13.5
Iraq	1,559,520	1,634,292	728,963	681,141	46.7	41.7	4.8	−6.6
Iran	2,229,291	2,688,688	1,068,097	1,232,917	47.9	45.9	20.6	15.4
Japan	36,509,742	43,045,369	16,392,578	17,896,589	44.9	41.6	17.9	9.2
Kwantung	1,517,799	1,334,036	1,423,300	953,000	93.8	71.4	−12.1	−33.0
Netherlands Indies	1,348,928	5,072,914	393,557	3,202,560	29.2	63.1	276.1	713.7
Philippine Islands	5,359,914	3,982,593	788,339	563,977	14.7	14.2	−25.7	−28.5
Syria	579,976	706,318	548,996	524,475	94.7	74.3	21.8	−4.5
Turkey	13,511,112	12,666,782	10,024,115	8,507,525	74.2	67.2	−6.3	−15.1
Other countries	2,344,450	3,533,142	664,386	945,377	28.3	26.8	50.7	40.6
Total Asia	$121,166,903	$149,715,058	$ 49,180,634	$ 53,895,405	40.6	36.0	23.6	9.6
Oceania	$ 9,814,444[1]	$ 12,008,351	$ 6,087,804	$ 7,886,164	62.0	65.7	22.4	29.5
Africa:								
Egypt	$ 4,589,307	$ 6,178,743	$ 1,856,114	$ 2,503,700	40.4	40.5	34.6	34.9
Gold Coast	1,791,648	3,855,457	898,751	1,501,522	50.2	38.9	115.2	67.1
Union of South Africa	675,781	10,158,662	325,593	5,702,207	48.2	56.1	1403.2	1651.3
Other countries	3,187,168	3,944,102	947,366	958,978	29.7	24.3	23.7	1.2
Total Africa	$ 10,243,904	$ 24,136,964	$ 4,027,824	$ 10,666,407	39.3	44.2	135.6	164.8
Grand Total	$820,157,218	$919,709,163	$312,095,152	$340,005,668	38.1	37.0	12.1	8.9

[1] Revised.

copper than in any recent year. A large increase in direct importations from the Netherlands East Indies served to offset decreased importations from the mother country and resulted in augmented collections on merchandise from the colonial area.

The effect of the European conflict appeared not only in duties collected on imports from particular countries but also in the diminished collections on commodities listed under the majority of the tariff schedules. The importance of Germany as the source of imports of chemicals, of Czecho-Slovakia as the source of leather footwear and gloves, linen goods, earthenware and glassware, and of Poland as the chief source of pork products, accounted to a considerable degree for the reduced revenue from imports of chemicals, earthenware and glassware, agricultural products, and sundries. If warehouse stocks in this country had not been built up prior to the beginning of hostilities, in anticipation of later import difficulties, even greater decreases in revenues would have been recorded on these and other products from countries from which direct importations could no longer be received.

DUTY REFUNDS

Some duties are collected in excess of the amount subsequently found to be actually due. The refund of such excessive duties amounted to $4,954,275 during 1940 and $4,122,800 during the previous year. Another type of refund designated as drawback is provided after the exportation under proper safeguards of merchandise previously imported. Such drawback payments aggregated $14,041,580 in 1940 and $11,342,265 in 1939. Approximately 98 per cent of the total for each year represents drawback on exported merchandise manufactured from imported materials, among the most important of which were sugar, flaxseed, and copper.

ENTRIES OF MERCHANDISE

For the second successive year and despite increased collections, the number of entries of merchandise was smaller than during the preceding year. This somewhat anomalous situation was due to the fact that sugar and wool, which were largely responsible for the increased revenue in 1940, were entered in large lots, comparatively few entries being required but the revenue per entry being much greater than for most of the other types of merchandise. The reduction in tourist traffic accounted for the sharp decline in the number of baggage entries and the duties collected thereon, and the break in communications with many European countries caused the pronounced reduction in the number of and duties on mail entries. Appraisement entries, which were numerous in 1938 and 1939 as a result of the receipt of a large quantity of the personal effects of European refugees, returned to a more nearly normal number and yielded much smaller returns in revenue than during either of the two preceding years. The increase in the number of warehouse entries was due to the accumulation of warehouse stocks, particularly of liquors, in anticipation of greater future difficulties in securing these materials from Europe, and the greater number of miscellaneous entries was due largely to the inclusion of drawback notices of intent which were more numerous in 1940 as a result of the expansion of exports.

MERCHANDISE ENTRIES

	Number of Entries		Duties Collected		Percent of Increase or Decrease (−)	
	1939	1940	1939	1940	No. of Entries	Duties
Consumption entries......	514,028	465,988	$185,652,884	$190,974,994	−9.3	2.9
Warehouse and rewarehouse entries..........	64,118	68,469	....	....	6.8	....
Warehouse withdrawals...	372,938	360,039	124,612,662	151,029,141	−3.5	21.2
Mail entries.............	590,976	423,000	2,890,832	2,098,094	−28.4	−27.4
Baggage entries..........	710,005	535,468	1,009,053	537,533	−24.6	−46.7
Informal entries.........	206,322	191,167	794,930	689,326	−7.3	−13.3
Appraisement entries.....	[1]25,307	16,721	272,446	143,788	−33.9	−47.2
Increased and additional duties..............	....	......	3,858,272	4,187,897	....	8.5
Other...................	[1]584,104	620,648	150,057	150,333	6.3	0.2
Total..............	[1]3,067,798	2,681,500	$319,241,136	$349,811,106	−12.6	9.6

[1] Revised.

INTERNATIONAL TRAFFIC

Motor Vehicles and Trains.—The number of motor vehicles and buses entering the United States aggregated 11,508,907 in 1940, a decrease of only 1.2 per cent from the previous fiscal year, and 32,256,533 persons entered the country by this means, a decrease of 3.8 per cent. The number of passenger trains entering the country was slightly larger and the number of other vehicles (including street cars) 30 per cent greater than in 1939, while more passengers arrived by these means of transportation in 1940.

Vessels.—For the second successive year, a larger number of documented vessels arrived from foreign ports than during the preceding year, the number in 1940 (34,331) being 6.6 per cent greater than during the previous year. There was a sharp decline, however, in the number of passengers entering the country by this means, only 733,338 persons being disembarked in 1940, compared with 1,019,313 in 1939, a decrease of 28.1 per cent. The number of undocumented vessels entering the country was slightly greater than during the previous year, while the number of ferries continued to decline.

Airplanes.—For the ninth consecutive year, airplane traffic on international lines continued to expand. The number of airplanes entering the country was 16.2 per cent greater than during the previous year, and the number of passengers using this means of transportation 48.8 per cent greater. More than half of the airplane passengers who reached the country on international lines arrived in the Florida customs district, most of them at the port of Miami. Increased traffic also appeared at Seattle, Wash., Burlington, Vt., Newark, N. J., and Brownsville, Tex.

LAW ENFORCEMENT

Seizures and Collections.—Seizures for violations of customs laws declined during the year both in number and in value. The 10,388 seizures was 9.3 per cent smaller than in 1939 and their value ($1,254,334) was 33 per cent less. The reduced passenger traffic was partially responsible for these decreases, several of the types of goods usually brought in by tourists being of smaller consequence than in 1939. The decrease in the number and value of seizures was also due in part to the smaller number of refugees and to a better knowledge among them of our customs requirements. During the two previous years many attempts were made, largely through ignorance, to bring in as personal property exempt from duty such goods as cameras and surgical instruments which could readily be converted into cash. During 1940 seizures of this sort were much less numerous and of much smaller value. More than one-fourth of the total value of all customs seizures consisted of colors and dyes seized from commercial importations for failure to comply with the requirements of the tariff act that a plain and complete description of their contents appear on the immediate container and on the invoice.

Collections resulting from attempts to evade customs laws were also smaller than during the previous year, amounting to $878,387 in 1940 and $2,030,875 in 1939. A considerable portion of the 1939 total ($974,572), however, represented penalties collected in cases which involved the large scale smuggling of illicit liquors prior to the repeal of the 18th amendment, while in 1940 there was only a single collection of $7,917 for this type of violation.

Narcotics.—Narcotic seizures were fewer in number and much smaller in value than during the previous year, and the quantity of narcotics seized smaller than for any year of the past decade. Only 859 seizures were recorded during 1940, as compared with 1,008 during the previous year, the values being $20,857 and $495,940 in 1940 and 1939, respectively. Several of the narcotic seizures during the previous year consisted of larger quantities than the entire volume of narcotics seized in 1940.

Smuggling Cases.—The largest collection during the year resulted from the discovery during the baggage inspection of an incoming passenger in October 1939 of some wearing apparel and jewelry which had not been declared, and this, together with other irregularities subsequently brought to light, resulted in the imposition of a penalty on the offender of $172,486.

There were 499 arrests in 1940 in connection with all seizure cases, only 19 fewer than during 1939. Of the 577 cases disposed of, 352 convictions were secured, or 62 per cent of the total. In 1939, 626 cases were disposed of, with 356 convictions or 57 per cent of the total. Prison terms to which customs violators were sentenced aggregated more than 155 years in 1940 and 339 years in 1939.

ADMINISTRATIVE PROVISIONS

As a part of its function in the enforcement of the Anti-dumping Act of 1921, the Bureau of Customs during the year issued five findings of dumping and revoked eight, one of the revocations being as of the date of issuance.

One order imposing countervailing duty was issued during the year under the provisions of section 303 of the Tariff Act of 1930. Several other countervailing duty orders previously issued were supplemented or modified, but none was revoked.

The policy of controlling imports by means of quotas was slightly extended. A duty-free quota on red cedar shingles was provided by the act of July 1, 1940, importations in excess of the quota being made dutiable. The quota on black and silver foxes and furs, originally established in the supplementary trade agreement with Canada effective Dec. 1, 1939, was modified and extended by another supplementary trade agreement with Canada, effective Dec. 1, 1940.

There was established on Jan. 8, 1940 in each of the offices of the comptrollers of customs a staff of field auditors for the purpose of making audits of the fiscal activities of the various customs districts, thus applying to government accounting the auditing principles widely recognized in private business.

CHANGES IN PORTS AND STATIONS

During the year, a port was established at Muskegon, Mich. which had previously been a customs station; and three new stations were established at Winton, Minn., Fargo, N. D., and Port Hueneme, Calif. On the other hand, two customs districts, six ports of entry, and three customs stations were abolished. The district of Iowa was abolished and included in the Chicago district after Sept. 23, 1939, and the Utah-Nevada district was abolished and included in the San Francisco district after Feb. 21, 1940. The ports of entry abolished were those at Des Moines, Ia., Fort Worth, Tex., Oklahoma City, Okla., Tulsa, Okla., Grand Haven, Mich., and Salt Lake City, Utah, and the stations abolished were those at Muskegon, Mich. (which was made a port), Sparrows Point, Md. (which was consolidated with the port of Baltimore), and Ottawa, Canada. In addition to these changes, the customs district of Laredo, Tex. was created to include all of the former customs district of San Antonio, except the port of Corpus Christi, which was transferred to the Galveston customs district.

RAILROADS

By J. J. Pelley

President, Association of American Railroads

NATIONAL DEFENSE AND THE RAILROADS

The United States in 1940 embarked upon the greatest program of national defense in the peace-time history of the nation. The causes which led to this step were not of this country's making, but as one after another of Europe's smaller nations was swept unwillingly into the path of war, national preparedness became clearly essential to our national security. However we may regret the necessity of such a course, none but the unthinking will doubt its wisdom, none but the saboteur will fail to do his share to bring the program to the desired goal.

Railroads occupied themselves in 1940 in strengthening their facilities and services to meet the growing transportation demands of the national defense program. New cars and locomotives were purchased and installed in service; maintenance programs, both with respect to equipment and to roadway, were stepped up; close cooperation was maintained with the Advisory Commission to the Council of National Defense; plans were laid for the prompt and efficient handling of defense materials; a Port Traffic Section and a Military Transportation Section were set up in the Association of American Railroads to facilitate and expedite movements of both military and defense traffic.

The importance of adequate transportation facilities to the national defense program was recognized by President Roosevelt when he appointed a railroad executive, Ralph Budd of the Chicago, Burlington and Quincy Railroad, as a member of the Advisory Commission. Needless to say, Mr. Budd and the commission have had, and will continue to have, the wholehearted support and cooperation of the railroad industry.

ADEQUACY OF RAILROAD SERVICES

Relatively heavy export traffic throughout the year, combined with the growing needs of the national defense program in the latter half of the year, stimulated railroad traffic volume to a level approaching that of 1930. In the freight service, revenue ton-miles increased 11 per cent over 1939 and were greater than in any year since 1930. Passenger-miles increased 4.6 per cent over 1939 and were greater than in any year since 1930 save only 1937.

To handle this greater volume of traffic, railroads purchased and installed in service during the 12 months ended Nov., 1940, 63,916 new freight cars, 110 new steam locomotives, and 267 new electric and diesel locomotives. In addition, the number of unserviceable freight cars was reduced by 44,867 units during the 12-month period, while the number of unserviceable locomotives was reduced by 909.

At all times during the year the carriers had a substantial margin of reserve equipment over and above that in active use. During the seasonal peak in October, surplus cars in serviceable condition averaged 101,523 daily, made up of 83,080 railroad-owned cars and 18,443 privately-owned cars.

One of the primary reasons for the complete adequacy of railroad services in 1940 was the fact that operating performance averages were at peak levels. Train loads were heavier than at any previous time in history. The average speed of train movements was at its peak. Each hour a freight train was in operation it produced more than twice as many gross ton-miles as in 1922. Never have the railroads been operated so efficiently as they were in 1940.

Having successfully met the period of peak demand in 1940, the carriers' attention is now centered on preparing for the greater volume of traffic which 1941 is expected to bring. On Dec. 1, 1940, railways had unfilled orders for 30,684 new freight cars, 116 new steam locomotives, and 66 electrics and diesels. The ratio of unserviceable freight cars was the lowest since the early months of 1931, and similar improvement in respect to reducing the number of unserviceable locomotives has also been made.

The trend of freight traffic during 1940 was in marked contrast to the trend in 1939. Although trends in both years were generally upward, and the level in 1940, week by week, was almost consistently above that of 1939, the later year did not have the sudden upsurge which marked the autumn months of 1939. Barring unexpected developments abroad, traffic trends in 1941 should follow very nearly the 1940 pattern, with freight volume running possibly in the neighborhood of seven-to-ten per cent increase and passenger volume possibly at about five per cent increase. Sudden termination of the war, or our entrance into the struggle, or other developments could change this outlook practically overnight, and for that reason it is necessary for the railroads at all times to maintain reserve facilities capable of meeting a sudden upsurge in traffic volume. That is the goal of the industry—to be ready for whatever may eventuate.

LEGISLATION

While the defense program overshadowed all other activities during 1940, other important developments took place in the field of transportation, not the least of which was legislation. Congress was in session practically throughout the year and passed several important pieces of legislation affecting the railroads. These included the Transportation Act of 1940, the Truman-Hobbs Bridge Act, amendments to the Railroad Unemployment Insurance Act, and others.

It will be recalled that during the 1939 session of Congress the two Houses passed differing versions of a bill known as the Omnibus Transportation Bill, designated S.2009. A conference committee was appointed to work out the differences in the two bills, and to report back a bill which both Houses might agree upon. The conferees reached agreement and submitted a new draft of the bill in April, 1940, but this was recommitted by the House of Representatives in May. The conference committee submitted a second draft of the bill in August, which passed both Houses, and upon signature by the President became law on Sept. 18, 1940. It is now known as the Transportation Act of 1940.

TRANSPORTATION ACT OF 1940

Briefly, the act amended in certain respects Part I (applying to railroads) and Part II (applying to motor carriers) of the Interstate Commerce Act; added a Part III for the purpose of regulating certain carriers by water; provided for a Presidential Commission to study transportation problems; repealed under specific conditions the provisions of the several Land Grant Acts which provided for reduced rates on non-military government traffic; and amended the Reconstruction Finance Corporation Act.

One of the outstanding features of the act was the declaration of a national transportation policy, which reads as follows: "It is hereby declared to be the national transportation policy of the Congress to provide for fair and impartial regulation of all modes of transportation subject to the provisions of this Act, so administered as to recognize and preserve the inherent advantages of each; to promote safe, adequate, economical and efficient service and foster sound economic conditions in transportation and among the several carriers; to encourage the establishment and maintenance of reasonable charges for transportation services, without unjust discriminations, undue preferences or advantages, or unfair or destructive competitive practices; to cooperate with the several states and the duly authorized officials thereof; and to encourage fair wages and equitable working conditions;—all to the end of developing, coordinating, and preserving a national transportation system by water, highway, and rail, as well as other means, adequate to meet the needs of the commerce of the United States, of the Postal Service, and of the national defense. All of the provisions of this Act shall be administered and enforced with a view to carrying out the above declaration of policy."

Such a national transportation policy, if put into practical effect, will be a long step toward ultimate solution of the transportation problem which has existed in this country for some years past. As the first step in carrying out this policy, the act set up a board of investigation and research, to be composed of three members appointed by the President, for the purpose of investigating: (a) The relative economy and fitness of carriers by railroad, motor and water for transportation service, with a view of determining the service for which each type of carrier is especially fitted, so that there may be developed a national transportation system in the United States; (b) The extent to which the several classes of carriers have been subsidized by the Government; (c) The extent to which taxes were imposed upon such carriers by governmental agencies; and (d) Any other matter which may relate to transportation. The President had not appointed such a board by the end of the year, but was expected to do so shortly after certain studies on transportation were completed.

The section of the Interstate Commerce Act dealing with consolidations, mergers, acquisitions of control, etc. was entirely rewritten and made applicable to rail, motor, and water carriers. The Interstate Commerce Commission is no longer required to prepare and adopt a general plan of consolidation for rail carriers, but continues its regulatory functions in this respect. The so-called Harrington amendment, relating to the position of employees displaced as a result of consolidations, which was one of the points of difference in earlier drafts of the bill, was finally included in the act in a modified form, limiting payments to such employees to a maximum of four years.

The new Part III of the Interstate Commerce Act places under Interstate Commerce Commission regulation coastwise, intercoastal, inland and Great Lakes common and contract carriers by water engaged in interstate and foreign commerce. However, there are certain exemptions, including bulk cargo carriers handling not more than three commodities, non-competitive contract carriers, and others.

The act provides for the payment of standard commercial rates on government traffic (except military or naval property and forces) which formerly moved at reduced rates over land-grant railroads. In order to take advantage of such standard rates, lines over which land-grant rates are in effect must release all claims, if any, to land granted but not yet certified or patented to them.

Amendments to the Reconstruction Finance Corporation Act included extension of the present limiting date (1945) on maturity of loans to 1955, increased the maximum amount available for railroad loans by $150,000,000, and certain other matters.

TRUMAN-HOBBS BRIDGE ACT

The Truman-Hobbs Bridge Act, which provides that the Government shall pay part of the cost for relocation or alteration of bridges over navigable streams, was passed over the President's veto, and became law on June 21, 1940. A similar bill was passed by Congress during the 1939 session, but did not become a law because of the President's "pocket veto" at the end of the session.

RAILROAD UNEMPLOYMENT INSURANCE ACT

Congress amended the Railroad Unemployment Insurance Act by increasing benefits payable under the act by some 68 per cent, while giving the railroads no relief from the 3 per cent payroll tax which supports the unemployment insurance system.

RECEIVERSHIPS AND TRUSTEESHIPS

No major changes occurred during 1940 in the status of railway companies in the hands of the courts, the number at the end of the year being 107, operating 76,898 miles of line, or 31 per cent of the total rail mileage of the country. These companies have a book investment in road and equipment approximating $6,000,000,000.

Progress was made during the year in bringing reorganization plans toward ultimate conclusion. Of the 73 companies undergoing Section 77 reorganization (trusteeships), plans for 21 companies have been approved by the Interstate Commerce Commission, and plans for four more companies have been proposed by examiners of the Commission. The 25 approved and proposed plans provide for a reduction in funded debt of 47 per cent, a reduction in fixed charges of 70 per cent (offset to some extent by contingent interest on income bonds, if earned and paid), and the almost complete elimination of old stockholders from participation in the new companies. Eight of the 21 plans approved by the Commission have also been approved by the courts, and three of these have received creditor approval.

INDUSTRY COMMITTEE NO. 9

The Fair Labor Standards Act, which became effective in October, 1938, fixed minimum wages at 25 cents per hour for the first year, 30 cents per hour for the next six years, and 40 cents per hour thereafter. However, the act also provided for the appointment of industry committees which may recommend advances in the minimum rate for a particular industry prior to the date on which the 40-cent statutory minimum becomes effective.

Such a committee was appointed for the railroad industry by the Wage and Hour Administrator, known as Industry Committee No. 9. It was composed of four representatives of the railroads, four representatives of railroad labor, and four representatives of the public. The committee, under the chairmanship of Frank P. Graham, representing the public, held extensive hearings during the spring of 1940, and recommended that the minimum wage for Class I railroads be fixed at 36 cents per hour and for smaller railroads at 33 cents per hour. The Administrator has ordered those minima into effect on March 1, 1941.

RAILROAD RETIREMENT BOARD

The Railroad Retirement Board, a Federal agency, administers the Railroad Retirement Act and the Railroad Unemployment Insurance Act. Railroads and their employees share equally in the cost of the employee retirement system set up in 1937 by the first of these two acts, while the railroads alone bear the cost of the system of unemployment insurance created in 1938 by the second-named act.

Taxes collected or accrued for retirement purposes from Jan. 1, 1937 to Nov. 30, 1940 amounted to $433,000,000, of which employers put up 50 per cent and employees a like amount. Benefit payments in the form of annuities, pensions, survivor annuities, and death benefits during the period amounted to $348,400,000. As of Nov. 30, 1940, 148,884 persons were receiving benefits under the Railroad Retirement Act.

Taxes collected or accrued for unemployment insurance purposes from July 1, 1939 to November 30, 1940 totaled $66,300,000, all of which was contributed by the railroads. In addition, $96,793,000 was transferred to the Retirement Board by States who collected the tax under provisions of the Social Security Act prior to the effective date of the Railroad Unemployment Insurance Act. Benefit payments by the Board from July 1, 1939 to November 30, 1940 amounted to $18,967,000. As previously stated, the Unemployment Insurance Act was amended in 1940, substantially increasing benefits payable under the act.

LOANS

Government loans to the railroads through the Reconstruction Finance Corporation and the Public Works Administration totaled $984,175,522 from the beginning of those agencies down to Nov. 30, 1940. Of that amount, $372,906,488 has been repaid by the railroads, and $129,664,000 has been sold to the public by the R.F.C. at a profit. The net amount of the railroads' indebtedness to the government on Nov. 30, 1940 was $481,605,034.

TRAFFIC AND EARNINGS

The table next page gives the principal statistics with respect to traffic and earnings of Class I railways in 1940. For comparative purposes, figures for 1937, 1938, and 1939 are also given.

Carloadings of revenue freight in 1940 were 7.2 per cent greater than in 1939, but were less than in 1937 by 3.5 per cent. Revenue ton-miles of freight increased 11 per cent over 1939, and were greater than in any year since 1930.

Passenger-miles in 1940 were greater than in 1939 by 4.6 per cent, but were less than in 1937 by 3.9 per cent.

Operating revenues in 1940 totaled $4,275,000,000, an increase of 7 per cent over 1939 and an increase of 2.6

	1940	1939	1938	1937
Traffic				
Freight carloadings (000)	36,354	33,911	30,457	37,670
Revenue ton-miles (000,000)	370,000	333,438	290,084	360,620
Passenger-miles (000,000)	23,700	22,651	21,629	24,655
Earnings				
Operating revenues (000,000)	$4,275.0	$3,995.0	$3,565.5	$4,116.1
Operating expenses (000,000)	3,090.0	2,918.2	2,722.2	3,119.1
Taxes (000,000)	405.0	355.7	340.8	325.7
Net ry. oper. income (000,000)	650.0	588.8	372.9	590.2
Return on prop. investment—%	2.49	2.25	1.43	2.27
Net income after charges (000,000)	155.0	98.2	*d*123.5	98.1

d—Deficit.

per cent over 1937. While this total was greater than in any year since 1930, it fell short of revenues of that year by $1,000,000,000 and fell short of revenues in 1929 by $2,000,000,000.

Operating expenses in 1940 amounted to $3,090,000,000, an increase of 5.9 per cent over 1939 but one per cent under 1937. Maintenance expenses increased at a greater percentage than did other items of expense, reflecting the activity of the rail carriers in readying their facilities for the demands of the national defense program. Maintenance of way and structure expenses increased 7.1 per cent over 1939, while maintenance of equipment expenses increased 6.7 per cent.

Railway taxes increased 13.9 per cent over 1939. The total of $405,000,000 paid in taxes during 1940 by Class I railways exceeded the previous peak, in 1929, by about $10,000,000, and averaged more than $1,100,000 daily. Twenty-nine per cent of the railway tax bill in 1940 represented payroll taxes for the support of the employee retirement and unemployment systems administered by the Railroad Retirement Board.

After paying operating expenses, taxes, and other operating charges, net railway operating income in 1940 amounted to $650,000,000, an increase of 10.4 per cent over 1939, and about the same over 1937. This figure, which represents the earnings before interest, fell short of the net in 1930 by $200,000,000, and of that in 1929 by $600,000,000.

The rate of return earned on property investment in 1940 was 2.49 per cent, compared with 2.25 per cent in 1939, 2.27 per cent in 1937, 3.28 per cent in 1930 and 4.81 per cent in 1929.

After interest and other fixed charges, net income for the year 1940 amounted to $155,000,000. This constituted only the sixth year in the past ten that the railways as a whole have earned a net income over and above fixed charges. Combining the net incomes and deficits of the past 10 years, 1931 to 1940, the net results for the period (an income of $368,000,000) is $156,000,000 less than the income earned in the single year 1930 and $529,000,000 less than in the single year 1929.

THE OUTLOOK

The year 1940 was one of the best in the past ten, from the standpoint of railway net earnings. However, results were far short of those of 1929, and even of 1930, and were below the real needs of the industry. Traffic trends, for the immediate future at least, seem destined for higher levels, and from that standpoint the outlook for the industry is encouraging. However, offsetting factors in the form of increasing expenses and taxes seem likely at least to keep pace with increasing revenues.

Whatever the future may bring in this respect, the industry now is concentrating its efforts on keeping the rail plant physically fit to meet the demands of the defense program. The industry expended about $400,000,000 in 1940 for capital improvements to property. As the year ended, there was no slackening in this rate of expenditure. The equipment maintenance program carried on throughout 1940 brought the ratio of bad order equipment down close to the irreducible minimum. That ratio will be maintained, or even further reduced, as long as the present emergency exists. Way and structure maintenance will be kept in line with traffic needs. The railroads fully appreciate their obligations in the defense program. They are meeting those obligations now, and will continue to do so in the future.

HIGHWAYS

By Thomas H. MacDonald

Commissioner of Public Roads, Public Roads Administration,
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FEDERAL-STATE COOPERATIVE WORK

Highway construction carried on by the states in cooperation with the Federal Government effected the improvement of 11,397 miles of highway, the elimination of 414 railroad-highway grade crossings, the reconstruction of 87 obsolete crossing structures, and the installation of protective devices at 1,201 grade crossings during the fiscal year ended June 30, 1940. In large part the year's work consisted of strengthening and widening surfaces, straightening alinement, flattening grades, eliminating hazards at grade crossings, and otherwise modernizing main highways to meet the ever greater demands of a constantly increasing traffic.

The year's work was financed almost entirely with regular Federal-aid and matching state funds, although small amounts of the emergency grants to the states for highway and grade crossing work were involved. Regular Federal-aid funds for 1940 were $100,000,000 for improvement of the Federal-aid system, $20,000,000 for elimination of hazards at railroad grade crossings, and $15,000,000 for improvement of secondary or farm-to-market roads. The states were required to match the highway and secondary road funds, but the grade crossing funds were available to pay the full cost of construction. As road building is a continuing process, these funds are not an exact measure of the work done during the year. Many projects begun in one year are completed in the following year, so that portions of one year's funds are used in the following year. Actual payments of Federal funds to the states amounted to $160,404,784 in 1940.

TYPES OF ROAD COMPLETED

Improvements during the year are classified by type as follows:

	Miles
Graded and drained	1,908
Sand-clay, treated and untreated	1,065
Gravel, treated and untreated	3,907
Macadam, treated and untreated	383
Low-cost bituminous mix	1,718
Bituminous macadam	116
Bituminous concrete	293
Portland cement concrete	1,910
Block	20
Bridges and approaches (surfaced)	62
Grade separations	15
Total	11,397

The 11,397 miles completed included 7,612 miles of rural portions of the Federal-aid highway system, 3,281 miles of secondary or feeder roads, and 504 miles of city streets.

The United States far surpasses any other country in its program of highway-railroad grade crossing elimination. During the calendar years 1933 to 1939 inclusive over 4,000 of the country's most dangerous crossings were eliminated and 3,400 were protected by warning devices. Substantial benefits to highway traffic have been realized both in greatly increased safety and in reduction of delay and congestion at grade crossings.

MODERNIZATION OF MAIN HIGHWAYS

Although the existing systems of state and Federal-aid highways are now almost entirely surfaced, many of the older roads fail to meet the service requirements of present-day traffic. These roads need straighter alinement, flatter grades, wider surfaces and shoulders. In addition, many old bridges still in use should be replaced with wider, stronger structures. These old roads and bridges served their purpose during the unprecedented growth of highway transportation, but are now obsolete and must be replaced with safer and more serviceable facilities.

Another traffic need, even more pressing than the modernization of rural highways, is the elimination of congestion in and around the larger cities. Intolerable conditions of delay and confusion have developed, resulting in "stop and go" driving that is as hazardous as it is wasteful. To alleviate these conditions, limited access highways passing through cities and beltline highways around cities are needed, together with bypass routes around the smaller towns. The high costs and delay in obtaining the necessary rights-of-way are the most serious obstacles that now retard the making of these needed improvements.

HIGHWAY PLANNING SURVEYS

All of the state highway departments are now cooperating with the Public Roads Administration in making highway planning surveys. Information is being obtained with which to produce a coordinated, factually determined plan for the administration and development of the highway systems of the nation, the states, and the counties. The first of these state-wide surveys was begun in 1935, and since then state after state has undertaken this cooperative work, aided with Federal funds and guided by the Public Roads Administration. Most states have completed the initial phases of the studies, have assembled the data essential to the formulation of a sound plan for future road development, and are now embarking on programs to keep the vast store of information current and usable.

The surveys are divided into three parts: 1 Road inventory parties in every state have had to drive over every mile of rural highway, recording measurements and observations for use in making maps and reports. This is undoubtedly the most extensive highway mapping program ever undertaken. A map of each county in the country is being prepared, which will show the location and type of all rural roads, and in all rural areas and unincorporated places will show the location of every house, church, school, airport, railroad station, public dock, etc. Such maps are essential in insuring that roads built in the future will serve the greatest need in every community. 2 At thousands of points throughout the country field parties have counted and classified the passing vehicles. Even on roads of minor importance sufficient traffic counts have been made to give an accurate picture of traffic on all sections of rural road. On all main highways trucks and buses have been weighed, measured, and their origin, destination, and load determined. Traffic counts serve two important purposes. They measure the service a road renders and determine whether the taxes paid by the vehicles using it equal the cost of building, rebuilding, and maintaining it. Detailed traffic information also enables determination of the adequacy of service provided by existing roads. 3 Highways in this country have been built by townships, counties, road districts, and by the states with and without Federal financial assistance. Lack of complete information on highway expenditures for the various classes of roads by the various governmental agencies has prevented intelligent consideration of the fairness of highway-user taxes collected and their distribution to various classes of roads. The financial surveys are divided as follows: fiscal transactions and debt, road use, location of motor vehicles and sources of motor-user taxes, and service life of roads.

Data collected in the planning surveys are being used in determining present and future road needs and the extent to which they can be met with available highway revenues.

HIGHWAYS AND NATIONAL DEFENSE

The second World War, the mechanization of land armies, and the present national preparedness program have focused attention on the military importance of highways. Fortunately, since 1922 the Public Roads Administration and the various state highway departments have cooperated closely with the War Department in planning highway development. A network of strategic highways needed for national defense has been designated, composed almost entirely of highways on the Federal-aid and state systems. From time to time this strategic system has been reexamined and revised, and preferential treatment has been given it in planning highway improvements during the past 18 years.

At the request of the military authorities, the Public Roads Administration has made a detailed survey of all highways on the strategic network, using road inventory data collected in the highway planning surveys. Substandard portions of the network have thus been quickly determined, and plans are being formulated to strengthen all weaknesses. Some 2,400 old bridges need strengthening or replacement; in some places road surfaces require strengthening or widening; road shoulders require widening in many places. Except for the shoulder widening, these weak points would normally have been strengthened soon to serve everyday traffic, as the military requirements do not impose higher standards than are required for normal civilian uses.

Other highway requirements for national defense have recently presented themselves as of first priority, however. The mobilization of industries and men in the preparedness program has created a demand for new street and highway facilities at many points. Roads in and providing access to new training camps and other military establishments are an urgent necessity. New and improved roads and streets are required to speed the flow of raw materials to, and finished products from, factories, arsenals, and munitions plants. Provision of these road and street facilities is going forward with all possible haste commensurate with good workmanship.

Since it is a maxim that any system of highways that serves the needs of commercial, agricultural, and recreational traffic will adequately meet the military requirements except in particular areas, this country's 1,200,000 miles of surfaced rural roads are an invaluable military asset.

ROAD CONSTRUCTION IN FEDERAL AREAS

During the fiscal year 1940 the Public Roads Administration supervised the construction of 282 miles of road in public lands and Federal reservations, 220 miles in national forests, and 330 miles in or leading to national parks and monuments. Construction of roads through such areas, a Federal policy for many years, gives continuity to the Federal-aid and state highway systems and makes accessible recreational areas and places of historical interest. During the past few years, and particularly since foreign travel has been greatly restricted, there has been an increase in the number of motorists visiting the scenic areas included in the national forests, parks, and monuments.

National parks in the west visited by the greatest numbers of people include Rocky Mountain in Colorado, Boulder Dam in Nevada and Arizona, Yellowstone in Wyoming, and Yosemite in California. Shenandoah and Great Smoky Mountains National Parks are the most-visited parks in the east. Construction of the Blue Ridge Parkway, which will pass through and connect these parks, is steadily progressing and approximately 200 miles have been completed. Work is also under way on the Natchez Trace Parkway, which will follow the old historic trail between Nashville, Tenn. and Natchez, Miss. Approximately 47 miles of this parkway have been completed.

HIGHWAY SAFETY

Motor-vehicle accidents in the United States during 1939 resulted in 32,600 deaths, an increase of less than 6/100 of 1 per cent over the previous year. However, definite improvement in highway safety during the year is attested by the fact that, while the number of fatalities remained practically unchanged, gasoline consumption increased 6 per cent and the number of registered motor vehicles increased 4 per cent. Thus, the number of deaths per 1,000 vehicles declined from 1.09 to 1.05 and the deaths per 1,000,000 gallons of gasoline declined from 1.67 to 1.58. The highway safety problem is now being attacked on many fronts, and further reduction in the accident toll should result from the united efforts of highway builders, safety officials, traffic law enforcement officers, and all highway users, whether drivers, passengers, or pedestrians.

THE INTER-AMERICAN HIGHWAY

Work on the projected Inter-American Highway from Laredo, Tex. to Panama, has progressed steadily. Over half of the route has been improved with surfaces passable at all seasons of the year. When completed this highway will extend 3,260 miles through Mexico, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, and Panama. At present the improvement is as follows: 1,180 miles of paved road, 767 miles of improved road passable at all seasons of the year, 492 miles of road passable only in dry weather, and 821 miles of trails. The status of improvement in each country at the close of the fiscal year 1940 was as follows:

STATUS OF IMPROVEMENT OF THE INTER-AMERICAN HIGHWAY [1]

Type	Mexico	Guatemala	El Salvador	Honduras	Nicaragua	Costa Rica	Panama	Total
	Miles	Miles	Miles	Miles	Miles	Miles	Miles	Miles
Paved	857	...	90	...	16	54	163	1,180
All weather	188	306	81	30	17	...	145	767
Dry weather	268	...	10	29	99	52	34	492
Trails	402	...	...	31	113	250	25	821
Total	1,715	306	181	90	245	356	367	3,260

[1] From the United States-Mexico border to the Panama Canal.

The cooperative work of the United States has aroused a strong interest in Central American countries in the Inter-American Highway. Several countries, on their own account, are extending or reconstructing sections of the route. Considerable impetus to the work has resulted from loans for highway construction made by the Export-Import Bank of Washington. Highway loans have been made to Central American countries as follows: Costa Rica, $4,600,000; Panama, $2,500,000; and Nicaragua, $1,700,000.

PROPOSED PAN AMERICAN HIGHWAY

During recent years there has been discussion of the possibility of a continuous highway from Alaska to Argentina. No official action has been taken towards designating and furthering the construction of such a highway as a single project. However, steps have been taken toward improvement of numerous sections that would be important links in such a route. Two commissions appointed by Congress have cooperated with Canadian officials in investigating feasible routes for a highway from the northwestern United States to Alaska. Both commissions have recommended construction of such a highway. At the present time, however, there is no possibility of traveling to Alaska by highway, and no funds have yet been authorized for constructing such a highway.

Three-fourths of the South American section of the proposed Pan American Highway is now passable at all seasons of the year. The 8,097 miles of highway in the South American section, between the Colombia-Panama border and Buenos Aires, Argentina (including an alternate route between Vitor, Peru, and Buenos Aires) have improvements as follows: paved, 2,015 miles; all-weather surfaces, 4,147 miles; dry-weather surfaces, 1,646 miles; and trails, 289 miles.

Little progress has yet been made in construction of the essential connection between the Canal Zone in Panama and the Panama-Colombia boundary. This section, about 300 miles long, in large part lies in the Darien Indian region of eastern Panama and is the least explored area along the entire route.

Recent legislation permits the Public Roads Administration to assist other American republics with specific highway problems. Under this authority engineers have been assigned to Venezuela, Colombia, Ecuador, and Argentina.

THE MOTOR BUS INDUSTRY

By Carl W. Stocks

Editor, *Bus Transportation*

FINANCIAL CONDITION

The bus industry closed the year 1940 in sound financial condition. Advance estimates based on operating results for the first nine months, revealed moderate revenue gains over 1939, these being most noticeable in city and local operation, where the pick-up in manufacturing and industrial activity was reflected in increased local riding. A sample test showed that revenues of city and suburban companies were 7.50 per cent better than in 1939 for the first nine months, a ratio that is believed to be typical of the country as a whole. In intercity operation similar estimates indicate substantially the same revenue as in 1939, for the country as a whole. These gains were spotty, the northeastern region showing revenue decreases over the previous year, with other territories compensating in part for this loss.

TRAFFIC VOLUME FACTORS

Expectations are that 1941 will show an even greater up trend in all classes of bus travel resulting from three factors: (1) the re-armament and industrial program with the resulting increase in employment and increased local to-and-from-work riding; (2) the inevitable shifting of workers from place to place with a consequent demand for medium priced transportation; (3) military movements in connection with the army and navy personnel. The latter two will mainly affect intercity carriers, but local carriers are likely to benefit by movements to and from nearby army and training camps.

EQUIPMENT PRODUCTION

There are indications that the defense program may affect the industry in other ways, particularly through a possible shortage of new equipment.

Bus manufacturers have a yearly production capacity of approximately 20,000 new units including school buses. But shortages in basic materials, and the likelihood that at least some portion of the bus manufacturing facilities will be turned to re-armament orders, is likely to slow bus production lines. Unless some form of priority by the Government as basic to defense needs is given to motor carriers the industry may face a shortage of new equipment.

All present indications point to a new record in motor bus purchases and deliveries for 1940. The previous record was set in 1939 when 18,655 new buses were delivered. Deliveries for the first nine months ran well ahead of 1939, and there seems every possibility as this is written that the 1937 high mark will be exceeded.

EQUIPMENT FEATURES

Types of Drive.—Equipment developments during 1940 were confined mainly to refinements to existing mechanical improvements of one kind or another introduced in previous years. For example, during 1940 there were further developments in hydraulic transmissions and torque converters first announced by several manufacturers in the closing months of 1938. In general, these types of drive (similar to those now in use on certain makes of automobiles) eliminate gear shifting and simplify the driving of a motor bus to the point where the operator has only to step on the accelerator to go and on the brake pedal to stop.

Springs.—Some current bus models are coming through with gravity or torsional type springs. This is a new principle in spring suspension, which utilizes torsional rods mounted lengthwise of the whole vehicle instead of springs in pairs, on each axle. These torsional rods do their job of soaking up road shocks with a twisting, torsional action, instead of jouncing up and down. The resulting ride for comfort and freedom from jar is said to be substantially better than with conventional springs and equal to that of a high priced passenger automobile.

Diesel Engines.—For half a dozen years diesel experiments have been in progress in the bus field. Today, the manufacturers have pretty much standardized on two or three types of diesels which give the most satisfactory all-around performance. The advantages of the diesel are many, including more miles per gallon, more horsepower, and more economical operations, due to lower fuel costs. As of Nov. 1, there were approximately 1,656 diesel buses in service in the United States with many more on order.

Air-conditioning is installed in a very sizeable percentage of all the new buses now being delivered for inter-city service. There are well over 2,000 air-conditioned buses now in operation, and about 1,200 jobs on order that will be air-conditioned.

Interior lighting is another subject that has come in for much development work. At least one manufacturer is supplying a type of fixture which permits each passenger to have an individually focused light, which can be used at night without disturbing other passengers even in the adjoining seat, and without interfering with the driver's vision. Under the old lighting system, lights were switched off by the driver as soon as the coach left the city. Now passengers can read in comfort nights as well as days.

Seating.—The now almost standardized practice of putting bus engines in the rear of the vehicle, or underfloor, has increased forward vision and seating space, but in many models the increased seating space has been utilized not to cram in more seats, but to give the passengers more leg room. Seats also are set up higher from the street level than they used to be, and the passengers look out over the heads of the crowd, so to speak, and over the tops of other vehicular traffic. Higher seating came in with the introduction of underfloor compartments for the storing of luggage. Many companies now check all baggage in the underfloor compartment, except for the smaller hand pieces which are accommodated in small inside racks. At least one company is experimenting with a very advanced bus model which incorporates a washroom and toilet with running water built into the rear of the coach on the right-hand side. This same model carries a sandwich bar up front, to the right of the driver, from which a steward sells light sandwiches, salads and hot and cold drinks.

Adaptation of Improvements.—Improvements have by no means been confined to equipment used for intercity and long-haul travel. All the major improvements, such as diesel power, better lighting, better springing and seating, rear engine propulsion and the like have also been adapted in one way or another to buses designed for both city and suburban transportation.

SIZE OF THE INDUSTRY

Latest available figures show that the bus industry now operates a total of 144,000 buses, representing 54,000 buses operated by common carriers and 90,000 buses owned and operated by school transportation systems and other private, non-revenue carriers.

The common carrier division of the industry is represented by approximately 3,800 companies, of which 2,650 are intercity companies, 750 are city carriers, and 400 companies operating sight-seeing, charter-hire, and other miscellaneous forms of common carrier service.

The intercity or long-haul carriers operate approximately 19,000 buses, and the sight-seeing and other miscellaneous carriers operate about 2,600 buses. The city and suburban carriers operate about 32,400 buses.

About 331,500 miles of highway are covered by intercity routes, 28,500 miles of city streets are used by local bus companies and there are, in addition, a good many thousands of miles of sight-seeing and other miscellaneous routes.

Although far less important from the viewpoint of investment or service to the public, the non-common carrier division of the bus industry is actually numerically greater. This phase of the industry is represented mainly by 89,000 buses operated by or for public schools, school districts, colleges and other educational institutions. These school vehicles traverse 1,300,000 miles of route daily during the 200 days of the school year, and carry approximately 4,000,000 children each day to and from school. Also in the non-common carrier group are about 1,000 vehicles operating in miscellaneous non-revenue service, such as apartment house buses, hospital vehicles, hotel buses, and the like.

PASSENGERS AND REVENUE

If one took a bus ride last year one had plenty of company, for approximately 4,440,000,000 people rode buses. The figure includes 3,900,000,000 city riders and 520,000,000 intercity riders, the balance representing sight-seeing and charter-hire passengers.

It is estimated that operating revenue was around $500,000,000, including $275,000,000 taken in by city and suburban companies, $220,600,000 taken in by intercity companies, the balance representing the revenue of sight-seeing and charter-hire operations.

The investment in the bus industry totals more than $1,000,000,000, including $625,000,000 invested in rolling stock, and $225,000,000 that has been put into terminals, garages, and other equipment essential for the operation and maintenance of the service.

TAXES AND FARES

In 1939 the average intercity bus company paid $1,800 per bus operated in taxes directly assignable to operations, not including hidden levies, such as corporation income taxes, excess profits taxes, and the like. On the same basis, local transportation companies in 1939 paid an average tax per bus of $989. Plotted against revenues, the averages show that for 1939 approximately 10 per cent of operating revenues went for such taxes and licenses in the case of intercity operators. Similarly 11.30 per cent of revenue went for taxes in the case of city companies.

Interstate carriers are beginning to realize some of the benefits resulting from the Federal Regulation which became effective with the passing of the Motor Carrier Act of 1935. This type of carrier now has a certain amount of protection from unfair competitive practices, and in several instances the Motor Carrier Bureau has stepped in and used its power to good effect, both for the protection of the industry and the public. Companies are now becoming more or less familiar with the routine involved in compliance with the Motor Carrier Act, and interpretation of the law seems to be proceeding along sound lines.

During the year there were a very few changes in fare structures, taking the country over. Whatever changes were put into effect almost invariably contributed to a downward trend. Rarely does the long-distance bus traveler today pay more than a cent and a quarter a mile, for safe, comfortable, and speedy transportation, which would have been beyond the wildest dreams of ten years ago, and which in many respects is superior, and certainly more carefree than travel by private automobile.

Basic fares charged on local lines in cities and suburban communities have shown a gradual downward trend in recent years. Twenty-five years ago the nickel fare was almost a universal rule on local street-car lines. But with the advent of the automobile the street railway companies found themselves in a desperate struggle to maintain a satisfactory financial condition in the face of rising costs and increasing competition. Wisely or otherwise, fare increases were resorted to, with the result that the five-cent fare pretty much passed out of the picture and six-, eight-, and even ten-cent fares became more common. During recent years, however, there has been an increasing realization that the average person is unwilling or unable to pay more than a nickel for his local ride and that, in the long run, the lower rate of fare will earn a greater return for the company. The net result is a definite trend toward lower fares in city service.

SCOPE OF SERVICE

Each passing year sees an ever-increasing number of street railway companies abandon their rail systems and take to rubber-tired transportation. Latest statistics show that close to 600 cities with a population of 10,000 or more now are served entirely by motor buses. In the majority of these cities a one-time railway has been abandoned.

With the defense program stimulating business and industry to a degree that was unimaginable even a few months ago, there seems little reason to doubt that transportation needs will follow the rise in industrial activity, and that 1941 will be an exceptional year for all classes of bus travel.

COMMUNITY TRANSIT

By John A. Miller

Editor, *Transit Journal*

TRAFFIC VOLUME, FARES, EXPENSES

Community transit in the United States experienced in 1940 a continuation of the steady improvement manifested during the preceding year. The total number of passengers carried increased by about 2½ per cent to 13,228,000,000. This rate of gain was almost exactly the same as that recorded in 1939. Rates of fare showed no significant changes during 1940. Gross operating revenues, therefore, increased in the same ratio as the number of passengers carried to a total of $785,000,000.

Operating expenses increased, too. This was due in part to the necessity to operate a larger number of vehicle-miles to accommodate the larger number of passengers. It was due in part also to the existence of higher rates of hourly wages for transit employees and the higher costs of materials and supplies. Indications are that the increase in operating expenses will be found to have approximately offset the increase in gross revenue, so that the industry's net revenue for 1940 will prove to be about the same as for 1939.

This would be a moderately satisfactory situation were it not for the tax situation. For some years past the burden of taxes carried by the transit industry has been steadily increasing. By 1939 it amounted to a little more than 10 per cent of the gross revenue, and 1940 witnessed further increase. Since the nature of the business necessitates its having a heavy investment in plant and equipment, on which fixed charges must be paid, and since it operates on a narrow margin between revenues and expenses, the constantly mounting tax burden has presented a particularly difficult problem. Not only has the transit industry had to pay the same general taxes as all other forms of business, but it has been subjected to a variety of special taxes such as those for maintaining street paving, payment of salaries of traffic policemen, contributions to the upkeep of public parks, vehicle licenses, etc. Here and there a disposition has been in evidence on the part of taxing authorities to recognize the inability of the industry to pass its taxes along to its customers, and to moderate excessive imposts, but these instances have been relatively few, and the majority of operating companies have been compelled to carry along their old tax burdens at the same time that new ones have been imposed.

SUMMARY OF TRANSIT OPERATION IN THE UNITED STATES

	Operating Revenue Jan. 1–Dec. 31	Passengers Carried Jan. 1–Dec. 31	Miles of Electrified Track‡ as of Dec. 31	Miles of Trolley Bus Route as of Dec. 31	Miles of Motor Bus Route as of Dec. 31	Number of Passenger Cars as of Dec. 31	Number of Trolley Buses as of Dec. 31	Number of Motor Buses as of Dec. 31
1890†	$ 90,617,211	2,023,010,202*	8,123*	0	0	32,505*	0	0
1902	247,553,999	4,774,211.904*	22,577*	0	0	60,290*	0	0
1907	430,687,858	9,583,081,000	34,382*	0	0	70,016*	0	0
1912	602,511,704	12,285,342,000	41,065*	0	#	76,162*	0	#
1917	763,325,092	14,726,914,573	44,835*	0	#	79,914*	0	39
1922	1,014,727,485	16,161,846,851	43,932*	22	685	77,301*	28	370
1927	1,084,439,961	16,855,435,276	41,967	31	18,007	70,309*	29	8,854
1932	745,323,819	11,745,985,108	34,742	276	26,604	64,585	285	16,693
1933	675,710,574	11,050,400,000	33,973	378	24,061	61,413	395	16,309
1934	710,374.526	12,103,200,000	32,028	467	24,933	58,225	448	17,411
1935	718,756,945	12,201,402,000	30,612	589	26,520	54,204	648	19,100
1936	765,756,000	12,984,842,000	29,319	850	27,717	51,730	1,154	22,104
1937	779,153,000	13,261,860,000	27,684	1,184	30,155	48,501	1,662	25,614
1938	744,091,000	12,663,167,200	26,185	1,474	32,042	45,466	2,002	26,477
1939	763,000.000	13,000,000,000	26,060	1,694	34,846	43,176	2,203	29,524
1940	785,000,000	13,228,000,000	23,249	1,935	39,994	40,515	2,836	32,602

* U. S. Census.
‡ Does not include electrified track of trunk line railroads doing exclusively long haul business. Includes cable and animal traction lines.
# Not available.

NATIONAL DEFENSE

As the country became increasingly active during the year in making preparations for national defense, the transit industry devoted close attention to the part it would be expected to play. This, obviously, was to provide whatever public passenger transportation service might be required by workers in plants engaged in national defense projects as well as by its regular patrons. After the United States entered the World War in 1917 the demands for transit service rose sharply. No such sharp rise occurred in 1940, but the increase in industrial activities in many communities was reflected in substantial increases in transit riding. Generally speaking, there was no overloading of existing facilities, but the prospect that the trend might be accelerated in 1941 prompted managements to give careful consideration to possible future needs for additional equipment.

In some respects the transit industry found itself in a better position than in 1917 to meet the demands for service arising from national defense activities. While the total number of vehicles available in 1940 was no larger in proportion to the prospective demands, the fact that a large number of these vehicles were motor buses and trolley buses, instead of all being electric railway cars, gave substantially greater flexibility and afforded opportunity to render service to new plant locations without the delay and expense of laying tracks.

DISTRIBUTION OF RIDING

For some years past a gradual change has been in progress in the distribution of transit riding among different types of service. In general this has taken the form of an increase in the number of passengers carried on motor buses and trolley buses and a decrease in those carried on electric surface railways. The last mentioned, however, is still the most important type of service from the standpoint of number of passengers. During 1940 the surface electric railway in the United States carried 46 per cent of the total number of transit riders, motor buses carried 33 per cent, rapid transit lines 17 per cent and trolley buses four per cent. One curious development has been a slight relative decrease in the importance of the rapid transit lines during the last two years. Apparently this has been due to a movement of population from older areas in the cities to new districts in the suburbs served by buses rather than by the rapid transit lines.

REHABILITATION OF RAIL LINES

The energetic efforts started several years ago by the Electric Railway Presidents' Conference Committee to rehabilitate surface railway equipment were continued in 1940. The number of new street cars ordered during the year was considerably larger than the year before. Philadelphia's order for 130 cars was the largest of the year, with St. Louis' order for 100 second. Other cities where new street cars were bought included Boston, Cincinnati, Kansas City and Washington.

In the interurban field, the Pacific Electric Railway, with its far-flung system centering in Los Angeles, bought 30 new cars equipped for operation in two-car trains. The Chicago North Shore & Milwaukee Railroad bought eight units arranged for operation as four-car, streamlined trains.

BUS AND TROLLEY BUS DEVELOPMENT

Expansion of both motor bus and trolley bus operations continued throughout the year. The number of new motor buses bought by the transit industry as a whole totalled about 4,000, or approximately the same as in 1939, while the number of trolley buses bought was about 500, or slightly less than in 1939. The actual increase in the two types of service, however, was much more nearly equal than might appear from the new equipment purchases, as a very large proportion of the buses were bought as replacements of existing units, while all of the trolley buses were additions to existing equipment. When the trolley buses now in operation—still relatively new—get a few years older this situation is destined to change, and a substantial volume of trolley bus buying for replacement purposes may be expected.

Electric braking, which was first undertaken in the transit field with the Electric Railway Presidents' Conference Committee's street car, was later adopted with marked success on trolley buses. During 1940 the same principle was extended to diesel-electric motor buses. In all instances the aim of electric braking has been to relieve wear on the shoes of mechanical brakes.

Another notable feature of the year was the increased interest shown by transit operators in diesel buses. Engines of this type were specified in a substantial proportion of the new buses ordered. In some instances the diesel engine was provided with electric drive. In others, hydraulic transmission was used. The rise of the diesel bus to popularity in the United States has taken place during the past six years. In 1934 there was only one such bus in regular transit operation in the entire country, while in 1940 there were nearly 1,000 in use and hundreds more on order. Fuel economy and lower maintenance costs are the outstanding advantages seen in the diesel bus.

RAPID TRANSIT

New York.—In the field of rapid transit the outstanding event of the year was the unification of the subway and elevated lines of the Interborough Rapid Transit Company, the Brooklyn-Manhattan Transit Corporation and the Independent Subway System into a single organization known as the New York City Transit System which is now by a wide margin the largest rapid transit system in the world. This unification has been accompanied by no changes in routing but has permitted free transferring at certain points where it was previously necessary to pay an extra fare in changing from one system to another.

New mileage was added to the existing rapid transit lines of the country with the opening of the Sixth Avenue subway in New York on Dec. 15. This line is a branch of the Independent Division of the New York City Transit System and takes the place of the Sixth Avenue Elevated which was demolished some time ago. During the year operation of the Ninth Avenue Elevated line was terminated and the removal of the structure was begun. No subway has been planned to take the place of this line.

Ambitious plans were announced by the New York City Transit System for the improvement of rapid transit rolling stock. As a preliminary step a subway train consisting of five aluminum, streamlined cars was secured for experimental purposes. These cars employ rubber in their construction in a manner similar to its use in the Electric Railway Presidents' Conference Committee street cars. Easier riding, and reduction of noise are expected to result from this use of rubber.

Chicago.—Construction of a new subway proceeded steadily. The sections included in the original plan are now nearing completion and operation is expected to begin in 1941. Some additional sections were planned during the past year. Their operation, of course, will begin at a later date.

THE OUTLOOK

A detailed forecast of the future of the transit industry can not be made under existing conditions. In a general way, however, it may be predicted that more workers in manufacturing plants, shipyards, etc. mean greater demands for local transportation. While many of the workers own private automobiles and use them to get to their jobs, there are many others without automobiles, and some of those who own them find it impracticable to use them regularly for getting to work. Efficient public transportation service, therefore, will continue to be an essential need in every community where national defense work is in progress. Moreover, the limited street capacity in the business and industrial sections of our cities precludes the possibility of carrying more than a fraction of the daily travelers by private automobile. Transit, therefore, remains essential to the functioning of ordinary business as well as that of an emergency character.

In some instances the demands of the national defense program can be taken care of by expansion of existing transit facilities. In other instances, where nation defense activities are located some distance from existing centers of population, there may be extension of the present transit facilities.

MERCHANT MARINE

By Peter Bain

Consulting Naval Architect

THE MERCHANT MARINE AS A NATIONAL ASSET

In supplementing the statutes of the United States by the Merchant Marine Act of 1936, the Roosevelt Administration and Congress builded better, perhaps, than they then knew. The war in Europe is the factor contributing most to the unique status and operating fitness of the American merchant marine as disclosed at the end of 1940. The merchant fleet is to a major degree now in being, equipped, and ready to carry out its mission of increasing American commerce over the high seas besides providing the type of auxiliaries which the United States Fleet train must include if the Navy is to function effectively as the nation's first line of defense.

In the 1850's, the American merchant marine afloat was probably the world leader, carrying as it did, by means of its famous clipper ships, rather better than 90 per cent of this country's foreign trade and a goodly share of the trade of other seafaring nations. Somewhat later, however, war and American concentration upon industrial and geographical expansion westward exercised a more or less unfavorable influence on maritime affairs generally, with the result that the merchant marine supremacy began to decline. This decline lost nothing in momentum in the interval up to 1914 when the first World War found us with so few ships in overseas trade that we could hardly claim it as in any sense a fleet. Indifference, too, to ships and shipping, had kept pace everywhere, except among those elements of population located directly on our seaboards. In an orgy of building during the first World War years more than $3,000,000,000 was spent and, with the ships then produced, the country just coasted along on a route that was mostly downhill. By 1934, the merchant marine position had become so desperate that legislative action could no longer be delayed; hence the Merchant Marine Act of 1936 and, with it, because embodied therein, the appointment of a Maritime Commission to administer the act in its every bearing and angle.

Congress laid upon the Maritime Commission the responsibility of making replacements in and additions to an inadequate and obsolete fleet. Three fundamentals may be said to have constituted the mandate as such—foreign trade, domestic trade, and national defense. As a start toward achievement of this three-fold goal, the Commission made an unusually thorough study of the whole maritime industry. Out of the requirements involved in replacements and additions, a minimum goal was set of 50 new ships per year for a decade. Since 1938, up to and inclusive of Dec. 31, 1940, as many as 179 new ships had been started, of which 91 had been launched, and 61 were already in service. Ships, it is claimed, are being launched at the rate of one each week and reaching completion at the same pace. It is worthy of note, when an international crisis became apparent in the summer of 1939, that the Maritime Commission accelerated its program by awarding contracts for 67 new ships in 42 days. None of the Commission's new construction is lying around idle for lack of a trading route, and practically all are either sold or chartered to private operators.

VALUE AS NAVAL AUXILIARY

As the wartime emergency became more acute the Navy Department set out to acquire during the year such merchant marine auxiliaries as it needed. Among the merchant ships taken over were 23 new vessels laid down by the Maritime Commission and, of these, the 12 national defense tankers of 19 knots speed were the earliest choice. Other units included seven C-2 type freighters which can make better than 17 knots, and four C-3 type freighters which have operated at 19 knots. The C-2 vessels will be utilized as ammunition and cargo carriers, and the C-3 type as submarine and seaplane tenders. Worthy of note, too, is the speed with which these ships were acquired and the rapidity with which they can be converted to their new services. Designs were made with Navy needs in mind and were approved by the Navy Department; thus, gun locations, accessibility of cargo spaces, and compartmentation were each planned for naval service.

Probably, however, the real worth of a merchant marine lies in directions other than those above indicated; to wit, in its machinery and equipment installations, operating efficiency, and superior speed. Maritime Commission ships now in service have, without exception, demonstrated all three of these virtues; besides contributing to their fitness as naval auxiliaries, obviating thereby combatant craft being wholly dependent on shore bases, they are no less essential to ship owners, ship operators, and shippers in the matter of international competition. Due to its having kept national defense one of the leading features of the construction program, it may be inferred that the defense aspect of the Commission's activities is further along than any other comparable activity.

Today, the merchant marine is primarily an instrument of defense, yet, when normal times return, it will revert to its primary function as a carrier of trade. It may not be overlooked, however, that merchant ships must justify themselves economically; they must pay their way. Through 1938 and 1939, the Commission's Program resulted in the establishment of eight practically new shipyards, some being new from the water's edge back, while others had done no building of deep-sea vessels since 1918. Shipbuilding on Commission account, at the year end, was progressing on the Atlantic, Gulf, and Pacific coasts.

MERCHANT FLEET PERSONNEL

While stressing the realized status and efficiency of the vessel constituent of the American merchant marine, it may not be forgotten that ships, however numerous and well-found, are more or less valueless without an equally numerous and thoroughly trained and disciplined personnel of all ratings to man them. In this connection, it may be said at the outset that a training program initiated by the Commission in 1938 has already achieved gratifying results in the matter of a raised standard of personnel efficiency.

Today, more than 600 young men are being trained in shipboard service as cadets, while more than 100 of the cadet officers have already been called to active duty by the Navy. All cadets belong to the Naval Reserve. In the Maritime Service, which trains experienced licensed and unlicensed personnel and apprentice seamen, there are 6,000 now enrolled, or roughly 10 per cent of the total employment on seagoing craft. Through the establishment of a personnel training program, seamen and officers are learning to do their work efficiently. One result has been a notable trend toward membership in the Naval Reserve. Many are being trained in the use of anti-aircraft and broadside guns and small arms. Still others are acquiring, through study of the elements involved, the aptitude and skill demanded in visual signalling and radio communication practice.

COOPERATION OF OWNERS AND OPERATORS

Aside altogether from the circumstance that the Maritime Commission has to a major extent dominated most activities of the American merchant marine, it may be said that vessel owners and operators have cooperated in every way to the smooth functioning of the growing fleet whether in the direction of its purely commercial side or that of its defense aspect. It may be observed, however, that labor in a number of instances has failed and still fails to demonstrate a like spirit.

As the nature of the emergency unfolded during the year, the Maritime Commission, in cooperation with private vessel owners and operators, developed a number of preparedness activities with a view to rounding out its defense program. At the request of the Navy Department, the Commission began to handle the acquisition of desirable merchant craft. Including the new construction, 37 vessels were acquired for the Navy and 12 for the Army. Notwithstanding, the Commission has been able so far to maintain at former level most essential services, particularly those with Latin America. Although these transfers have been carried through with little disruption of normal services, it did mean inconvenience and commercial loss to a number of vessel operators. In all cases, fair compensation was paid.

Of 10 reconditioned freighters from the Commission's laid-up fleet, all but one were in service before the year-end, replacing vessels acquired for the armed services or filling new needs created by the defense industrial program as a whole. Relative to strategic materials produced in whole or part outside of the United States, many of which came from countries now blockaded or from zones forbidden to American ships, re-routing became necessary for the movement of these vital commodities from other sources. Typical of the altered situation since the war began, more than 65 per cent of imports of manganese was transported in British ships. That tonnage being no longer available, American vessels had to be re-routed to insure the movement of an adequate supply for industries. The like is true also of rubber and tin.

While total tonnages are not available, the magnitude of this cargo movement may be drawn from the record of vessels leaving the Mediterranean during the summer of 1940 after that waterway was barred to our ships. Approximately 40,000 tons of vital materials were brought out by 20 American ships. Manganese and chrome ores predominated as cargo constituents.

On Oct. 29, an article appeared in the *Journal of Commerce* which brought home to us the tragic interruptions to world trade because of the war. The article indicated that 93 per cent of the world's tonnage in foreign trade had been in some way immobilized as far as free trading was concerned. Included in that 93 per cent was the American merchant marine because our ships are forbidden to trade in combat areas. Nevertheless, American ships are trading to and from every other port in the world; thus, not only has our foreign trade with nearly every free neutral country increased but the percentage of trade with neutral countries transported in American bottoms has also increased. The foreign trade fleets of belligerent nations generally have been transferred from their normal trade routes to fill their increasing war needs. New ships of the American merchant marine have taken over much of this lapsed trade.

The Commission's program is having a beneficial effect, too, upon the internal national economy. The Commission's program has brought new business to every industry which provides the essentials of ship construction and equipment. It is computed that what is spent on ship subsidies is more than returned in increased foreign trade, added employment, greater general industrial activity, and opening up of new foreign markets for our manufacturers and farmers.

UTILIZATION OF OVER-AGE SHIPS

By the sale of merchant ships to Great Britain, the American shipping industry and the Maritime Commission cooperated in another field of activity bearing upon national defense. British interests, toward the year-end, had purchased 150 or more ships of all types in the United States during the war period, and expectations were that the foregoing total would be substantially augmented following the opening of bids on January 7, 1941, for the purchase of 18 cargo, five refrigerator, and one passenger vessel, all built for overseas service, and units of the laid-up fleet of the Maritime Commission, dating back at least to 1914-18. Twenty-one of these ships are oil burners and three use coal, the latter including the ex-German liner *George Washington,* built at Stettin, and taken over by the United States when we entered the world war on the side of the Allies. The *George Washington* is about 28,000 tons, while the others range around 8,500 tons. Among other foreign purchasers of our old ships were Canada with 42, France 19, and Belgium nine. For the most part the purchases referred to cargo carriers of more than 1,000 gross tons each, and were made direct with private operators. A goodly number, however, were made with the Maritime Commission through the medium of public sale, the vessel units being withdrawn from that body's fast diminishing laid-up fleet.

American cooperation in replacing Britain's shipping losses is scheduled to continue, for while the Commission's new construction can not be sold abroad, a small reservoir of old vessels still remains to be tapped. Britain wants old ships because the risk of sinking does not justify a large investment in new units. This country has proportionately more over-age ships than any other important maritime nation. From vessels already transferred to foreign registry in this war time, it is understood that American shipowners have received more than $50,000,000, all of which the Commission has required to be reinvested in new construction.

CHARACTERISTICS OF THE REHABILITATED FLEET

The number of ships does not tell the whole story of the existing fitness of the American merchant marine, either for commercial trading or national defense. Behind the planning that an attempt should be made to place the greater part of the new construction on the assembly line, metaphorically speaking, and to standardize, as far as possible, vessel design, there were anticipated large economies in construction, besides simplification of the shippers' problems. Toward this ideal, four major types of cargo carriers were developed. Each type was adapted to the special requirements of major trade routes. As a result, all of them are so far in advance of earlier freighter design that each classification has set several world records for speed and economy of operation for vessels of their respective tonnages.

The C-1 vessels are divided into four categories: the steam-propelled, shelter-deck model of 7,500 deadweight tons, 413 ft. length overall, and 14 knots sea speed; the Diesel-propelled, shelter-deck model of 7,400 d.w.t. tons, 413 ft. overall, and 14 knots sea speed; the steam-propelled, full-scantling model of 8,975 d.w.t. tons, 417 ft. 9 in. length overall, and 14 knots sea speed; the Diesel-propelled, full-scantling model of 8,875 d.w.t. tons, 417 ft. 9 ins. length overall, and 14 knots sea speed. Accommodations are provided for eight passengers in all four models. The original design of the Maritime Commission, the C-2 category, was chosen because the Commission believed that vessel size, capacity, and speed to be the most urgent replacement called for in any rehabilitation program.

This design has met with much favor throughout the shipping industry, a balance of speed, cargo capacity, and economical characteristics having been attained. The C-2 vessels are divided into two categories, the Diesel-propelled, of 8,656 d.w. tons, 459 ft. overall length, and 15½ knots sea speed; and the steam-propelled model of 9,758 d.w. tons, 459 ft. overall length, and 15½ knots sea speed. The Diesel-propelled units have accommodations for 12 passengers, while no provision has been made for passengers on their steam-propelled sisters. The C-3 ships are being constructed from the second design prepared by the Maritime Commission. They include Diesel and steam turbine propulsion in cargo and combination cargo-passenger models. Hull construction is essentially the same for both models. Their design was created to satisfy the need for vessels of greater d.w. cargo capacity, and greater speed than those of the C-2 design. The Diesel-propelled units are of 11,975 d.w. tons, 492 ft. overall length, and 16½ knots sea speed, besides 32,890 cubic feet of refrigerated cargo capacity. The steam-propelled units are of 12,595 d.w. tons, 492 ft. overall length, 16½ knots sea speed, 10,446 tons cargo capacity, and 730,549 bale cubic capacity. Each model provides accommodations for 12 passengers.

Under the operating subsidy provisions of the Merchant Marine Act of 1936, ship line operators must build new vessels to qualify for payments covering the difference in cost of operating a vessel in conformity with American legislation providing higher wages, fewer hours of work, and better working conditions than are provided on foreign craft. In cooperation with the Maritime Commission, the American Export Lines which operates between New York, the Mediterranean and India, has constructed several fast freight steamers somewhat similar to those of the C-3 model. They embody the shelter-deck feature, steam turbine propulsion, three complete steel decks, seven cargo holds, a d.w. tonnage of 9,514, a length overall of 473 ft. and a normal sea speed of 16½ knots. No passenger accommodations are provided.

Other ships under construction which follow Maritime Commission designs more or less closely include those for the Seas Shipping Co. for its Robin Line. Of the shelter-deck type, they are steam-propelled, of 9,600 d.w. tons, 450 ft. between perpendiculars, 6,950 tons cargo capacity, accommodations for 12 passengers, and 15½ knots speed. For Round-the-World service of the American President Lines, a C-3 type was designed with essentially the same hull as the C-3 cargo ships already noted, but altered to provide more passenger accommodations. Seven in all have been under construction, two of the number being already in service. They are steam-propelled, of 9,690 d.w. tons, 492 ft. length overall, 7,350 tons cargo capacity, 49,000 cubic ft. refrigerated cargo capacity, normal speed 16½ knots, and accommodations for 96 passengers and 124 officers and crew. Other C-3 cargo and passenger vessels designed for South American trade are propelled by Sun-Doxford Diesel engines, and differ only from that just noted in that a superstructure has been added in order to provide for a greater number of passengers and crew, amounting to 196 of the former and 155 of the latter. The Mississippi Shipping Co. for its Delta Line between Gulf ports and those of Argentina, Brazil, and Uruguay also adopted the C-3 type model as a basis when ordering additions to its fleet. This new construction is steam-propelled, of 9,021 d.w. tons, 491 ft. length overall, 6,000 tons cargo capacity, 453,273, cubic ft. bale capacity, normal sea speed 16½ knots, and accommodations for 67 passengers.

DEFENSE-PASSENGER LINERS PLANNED

Plans were made for construction of the two largest liners ever to be built in the United States. They will operate from San Francisco to the Orient. According to the Maritime Commission, it will be possible in an emergency to convert both vessels quickly into aircraft carriers. Their design, developed by the technical staff of the Commission, is in many respects unique. While the convertible feature in no way detracts from the facilities for carrying passengers in unusual comfort and safety, with the exception of their offset smokestacks, their national defense characteristics will not be otherwise apparent. They will be 759 ft. length overall, with a beam on the waterline of 98.2 feet, a displacement of 35,500 tons, and a designed speed of 24 knots. They will accommodate approximately 1,000 passengers and a ship's personnel of about 500. Cargo space will run to 535,000 bale cubic feet. Hull construction will embody a curved raked stem, a cruiser stern, a long bridge house, four complete decks. Promenade, boat, and sun decks will be super-imposed. Fourteen main water-tight transverse bulkheads together with numerous additional watertight and oiltight subdivisions, will contribute in more than ordinary degree to prevent foundering in the event of collision. Large holds forward and aft will be serviced by ample equipment and apparatus for handling cargo through both hatches and side ports.

Provision has been made for the conveyance of automobiles on the forward promenade deck. Passenger quarters will be located on the main, promenade and boat decks. An up-to-date fire protection system and application of incombustible materials to internal structures, insure the maximum of protection against fire. Separate swimming pools will be installed for the use of cabin, tourist, and third class passengers, while unusually large, unobstructed spaces will be available for all manner of deck recreation. Twin screws driven through double-reduction-geared triple expansion steam turbines will constitute the main propulsion medium. Two complete installations of the main power plant, independent of and separate from each other, should prevent disabling of both in the event that the hull should be seriously damaged from any cause.

According to present plans, these two super-liners are expected to be ready for service in 1943, and anticipations are that the American Presidents Line Corporation will operate them. Bids on the two vessels were opened in Washington on Feb. 13, 1940. The Seattle-Tacoma Ship-building Corporation of Seattle was the only bidder. That concern, a subsidiary of the Todd Shipyards Corporation, offered to construct the vessels for $28,458,000 each on a fixed price basis and $23,715,000 each on an adjusted price basis.

On July 2, the *America,* the largest and most palatial liner yet built in the United States, was formally assigned to the United States Lines by the Maritime Commission. Originally, this fine ship was designed and built for service between New York, Cobh, Havre, and Hamburg. The war having intervened, the *America,* during the last six months of the year, was diverted to cruise services. Principal characteristics of the *America* are: Gross tonnage of 26,482, deadweight tonnage 14,361, length overall 723 feet, beam 93 feet 3 inches, displacement at load draft 35,440 tons, cargo capacity 4,000 tons, number of holds six, draft loaded 32 feet, passengers 1,202, crew 643, shaft horse power 34,000, normal sea speed 22 knots, cruising radius 11,000 miles. Newport News Shipbuilding and Dry Dock Co. built the *America.*

FEATURES OF NEW HIGH AND MEDIUM SPEED TANKERS

In the tanker category, following discussions with the Navy Department, the Maritime Commission determined that the defense of the United States called for a fleet of high-speed tankers which could accompany and refuel naval combatant ships. Existent tanker speeds averaged about 12 knots in commercial service. The initial step toward remedying the situation was the ordering of 12 fast, twin-screw units by the Standard Oil Co. of New Jersey in cooperation with the Commission, by which the latter paid the cost of additional national defense features. The Navy Department purchased all of the new tankers, since which, operating speeds of better than 18 knots have been a service experience. To develop a somewhat less expensive tanker that still could accompany the Fleet, the Commission cooperated in ordering 11 single-screw units with a designed speed of 16½ knots. Six were being constructed for the Socony-Vacuum Oil Co. and five for the Keystone Tankship Corporation or affiliates.

As a result of this program of 23 ships, commercial tanker standards have been raised almost to a par with those of the United States Navy. Not a few major oil companies have raised tanker speeds on their new vessels to 15 and 16 knots. Characteristics of the twin screw tankers include: Gross tonnage of 11,335; designed deadweight 16,735; length overall 553 ft.; beam 75 ft.; displacement 23,338 tons; cargo capacity 145,000 barrels at 42 gallons; shaft horse power 13,500. Features of the single screw, T-2 Keystone tankers are designed deadweight of 15,400 tons; length overall 514 ft. 1½ ins.; beam 68 feet; displacement 21,000 tons; cargo capacity 129,000 barrels at 42 gallons; and 12,000 shaft horse power. In the case of the single screw Socony-Vacuum tankers, the designed deadweight is 15,850 tons; length overall 501 ft. 7½ ins.; beam 68 feet; displacement 21,000 tons; cargo capacity 129,000 barrels at 42 gallons; designed draft 29 ft. 8½ ins.; and shaft horsepower 12,000. Like high standards are being applied in the design of living quarters for the men. All rooms are located so as to constitute outside compartments subject to both improved natural and mechanical ventilation. Lights are installed at the heads of berths, together with washbasins, mirrors, lights for shaving, etc. Combination mess and recreation rooms, also adequate shower and toilet conveniences, help to a marked degree to stimulate a much finer *esprit de corps* than hitherto had been possible.

GREAT LAKES WATERWAY-TO-SEA PROJECT

John W. Slacks of the Maritime Commission, declared in Detroit on Dec. 6 that the Great Lakes region was amply equipped to take part in the nation's rapidly expanding shipbuilding program but indicated that no major contracts could be placed there until an adequate waterway to the open sea was completed. The Great Lakes Seaway Conference had received a message from President Roosevelt pledging revival of the drive to complete the project as a matter of national defense. The Maritime Commission was understood to regard the waterways program favorably. The difficulties during the first world-war were recalled when ships had to be parted amidships to get them through the canal locks on their way to seaboard following construction in Great Lakes shipyards. It was estimated that the Maritime Commission wished to avoid a repetition of that situation. There might come a time when the United States would be fortunate if it were able to transport its oil supplies through a Mississippi-Great Lakes system to the Atlantic Ocean.

Representative Dingell of Michigan opened the conference program with a plea for both the waterway and the power project. He claimed that opposition to the seaway was "selfish or blind" and predicted that the United States Senate would approve a seaway treaty with Canada "after a fight." He considered the Great Lakes region to be the logical spot for construction of deep-sea ships. He deemed the seaboards too vulnerable.

Among the resolutions passed by

the Conference was one calling for an "all-out drive" to start work on the project. World events have made it necessary for this nation to turn from its customary peace-time pursuits and adopt an all-inclusive program of national defense, the resolution continued. It concluded with a demand that Congress approve the St. Lawrence treaty when it is submitted by the President. Premier MacKenzie King of Canada assured the House of Commons at Ottawa that any agreement reached between the Governments of Canada and the United States would be submitted to Parliament for ratification after approval by the appropriate United States authorities. He indicated that there could be no separation of the navigation features from those of the power part of the project.

Freight traffic on St. Mary's River was officially closed on Dec. 23 with the issue by the United States Army Engineers office at Sault Ste. Marie, Mich. of the annual lock report showing 89,858,319 tons of freight handled in 1940, compared with 69,850,262 tons in 1939, an increase of 29 per cent. The season on the Great Lakes registered all-time records for iron ore shipments with a total of 66,177,996 tons compared with 46,803,691 in the previous year. Total freight handled was the highest since 1929 (92,622,017 tons.) The report showed increases in shipments of automobiles, general merchandise, stone, petroleum products, soft coal, scrap iron, structural steel, iron ore, copper and zinc, pulpwood, lumber and passengers. Decreases were shown in flour, wheat, hard coal, and salt. A. H. Ferbert, president of the Pittsburgh Steamship Co. announced Dec. 23 plans for the construction of two new ore carriers, to be ready for service in 1942. The Pittsburgh Steamship Co. is a subsidiary of the United States Steel Corporation. It operates a fleet of 68 steamers and two barges.

WHEELER-LEA BILL

The Wheeler-Lea Bill to bring domestic carriers by water under Federal regulation similar to that now covering motor and railroad transportation won, on Sept. 9, final Senate approval, ending thereby a legislative controversy of almost two years. The bill had its origin in the recommendations of a special committee of employers and employees appointed by President Roosevelt in 1938 to make recommendations for remedying the financial status of our railroads. The bill constituted a second effort at compromise. Inland, coastal, and intercoastal water carriers, except certain types not competitive with land transportation, come under regulation by the Interstate Commerce Commission, while foreign commerce remains under the jurisdiction of the United States Maritime Commission. The existent requirements for reduced rates on government traffic over so-called land-grant railroads comes under repeal except for military and naval traffic. The measure creates a three-man board of investigation and research to be appointed by the President.

MARINE WAR-RISK INSURANCE BILL

President Roosevelt put the government in the marine war-risk insurance business on July 19 when he signed a bill appropriating $40,000,000 for a revolving fund to be administered by the United States Maritime Commission. Originally, $50,000,000 was the amount sought to be underwritten by Congress. Long advocated by the Maritime Commission, the bill plans to provide a "buffer" against inability of American ship operators to obtain insurance on reasonable terms and conditions in the private insurance market. Hearings relative to legislative enactment disclosed that American underwriters had re-insured about half their risks in foreign markets, principally British. Provision is also made to re-insure policies written by private companies. Cargoes as well as the ships themselves come within the scope of the act.

Because much of the insurance written in the United States is re-insured in London, fears had been expressed that protection for American vessels and cargoes might be curtailed should the London insurance market become disrupted by the war. Proponents of the new law claimed that the Federal Government alone would be able to assume the resultant burden in this country. It may be not without interest to note that on Christmas Day underwriters here announced further reductions on marine war-risk rates covering shipments to and from Mediterranean and near-by ports. The rates were cut sharply when it first became evident that Great Britain was able to protect shipments there. The new rates schedule, apparently based on Italy's unsuccessful attempts to control the area indicated, excludes, however, shipments to or from French or Italian possessions. Reductions were also made on shipments to and from the East and Far East excluding French Indo-China and shipments to Burma and ports west of India.

Italy's entry into the war as an Axis partner and Germany's conquest of the countries bordering western Europe, of necessity led to a further expansion of belligerent zones barred to trading by American ships. Great Britain's peremptory order, that all British merchant ships cease trading in and through the Mediterranean, prompted President Roosevelt to issue his proclamation of April 10. The extended combat areas as defined in the proclamation consist of all the navigable waters within the limits hereafter set forth. Beginning at the intersection of the north coast of Spain with the meridian of 2 degrees 45 minutes Longitude West of Greenwich; thence due north to a point in 43 degrees 54 minutes North Latitude; thence by a rhumb line to a point in 45 degrees North Latitude, 20 degrees West Longitude; thence due north to 58 degrees North Latitude; thence by a rhumb line to a point in 76 degrees 30 minutes North Latitude, 16 degrees 35 minutes East Longitude; thence by a rhumb line to a point in 70 degrees North Latitude, 44 degrees East Longitude; thence due south to the mainland of the Union Soviet Socialist Republics; thence along the coast line of the Union of Soviet Socialist Republics, Finland, Norway, Sweden, the Baltic Sea and dependent waters thereof, Germany, Denmark, the Netherlands, Belgium, France and Spain, to the point of beginning.

It took some time for American ships to get home from voyages previously begun and continuing in the newly prescribed forbidden zones; notwithstanding, all vessels concerned reached their home ports without mishap. American ship lines affected were those of the United States Lines, American Export Line, Isthmian Line, and Lykes Brothers. The American President Line, too, was affected, in that its round-the-world service was forced to replace its Suez Canal-Mediterranean route with that of the Cape of Good Hope from India. In one way or another, all lines suffering from the service dislocation, later, were enabled to make the necessary adjustments.

INTER-AMERICAN SHIPPING

On November 25 and following days, an Inter-American Maritime Conference was in session in Washington, D.C. Early in the proceedings, a proposal to set up an inter-American maritime commission to sit permanently in the capital was offered by the Cuban delegation. Among the projects introduced was a motion providing for equal opportunities to vessels of all the American republics to engage in maritime transportation between the republics; a resolution calling for a new series of studies with a view to making more fully known to the travelling public of the American nations the facilities now available for tourist travel; a resolution requesting the United States to abolish present regulations reserving exclusively for its ships the transportation of United States products bought by Latin-American nations with American credits; a resolution requesting the Inter-American Advisory Committee to consider the possibility of utilizing the

Export-Import Bank to finance Latin-American nations in developing merchant marine fleets.

The Cuban proposal for establishing an Inter-American Maritime Commission with sweeping powers to coordinate and probably veto rate and pooling agreements approved by national maritime regulatory bodies was the center of discussion at the session held on Nov. 28. The proposal appears to have roused little enthusiasm.

The Conference ended its session on Dec. 2, by adopting 12 resolutions dealing with shipping problems of the American republics. One resolution called for creation of a permanent group to watch over shipping in this hemisphere, in line with the purpose of promoting trade and goodwill between the 21 republics. Another urged consideration of changes in regulations restricting the transportation of cargo to vessels of its own registry. Others dealt with free ports, establishment of a permanent Inter-American Maritime Conference, requesting the inter-American economic committee to suggest to the various Governments that they consider requirements of all republics in establishing freight rates, and development of inter-American maritime transportation. The resolutions adopted were coordinated from a total of 38 introduced during the sessions.

No action was taken on a proposal looking to a reduction of Panama Canal tolls. Well-informed circles expressed an opinion that Chile, Peru, and Ecuador, had been putting the "Good Neighbor" policy to a test at the Conference, because of the arguments they had brought forward in favor of a reduction in Panama Canal tolls, and other measures beneficial to the continent as a whole. Twenty-four American steamship concerns and 28 inter-American steamship conferences were represented. Delegates were representative of the 21 republics. Panama Canal traffic for the fiscal year ended June 30, declined 500 in the number of ships and $2,500,000 in tolls collected when compared with the previous fiscal year. The greater part of the decline was registered in the last six months of the period. The tolls collected amounted to $21,144,675, the lowest since 1933 when they fell below $20,000,000. No German ships had used the canal since war broke out; this compares with 361 transits during the fiscal year 1939, throughout which 200 Danish, 107 French, 59 Italian, 312 Netherland, and 704 Norwegian ships used the canal.

GREAT BRITAIN ORDERS SHIPS HERE

In spite of her heavy purchases of over-age American merchant ships, Great Britain has been driven to establish in effect commercial shipyards in the United States. On Dec. 19, British representatives signed a contract in New York for the construction of 60 freighters at an estimated cost of $100,000,000. The contract was signed in the offices of the Todd Shipyards Corporation. Two new affiliates of the Todd Corporation—the Todd-California Shipbuilding Corporation of Richmond, Calif. and the Todd-Bath Iron Shipbuilding Corporation of South Portland, Me. will each build 30 ships. This order is believed to be the forerunner of others at an early date.

AMERICAN SHIPBUILDING SUMMARY

Vessel units of the American merchant marine under construction or contract on Dec. 1, 1940 to American Bureau of Shipping classification totalled 308 of 1,544,790 gross tons. This compares with 240 units of 1,181,795 gross tons on Dec. 1, 1939. A summary of the Dec. 1, 1940 total shows that 177 were seagoing vessels of 1,478,390 gross tons, 125 miscellaneous of 50,285 gross tons, one Great Lakes of 6,000 gross tons, two composite of 435 gross tons, and three wood of 680 gross tons. Other vessels under construction of over 1,000 gross tons numbered six totalling 46,750 gross tons.

SHIPPING EARNINGS

For the nine months ended Sept. 30, earnings of the American Export Lines amounted to $5,894,955 after Federal income taxes and other charges but before adjustments provided in the Merchant Marine Act of 1936. Earnings for the first nine months of 1939 were $216,631. According to a declaration by the company, it is difficult to make any forecast of future earnings; nevertheless, the management estimates that earnings for the final quarter of 1940 will be fully as good as those of the last quarter of 1939, when they amounted to $1,241,994. Dislocation of the line's business through closing of the Mediterranean and Black Sea to American ships has been in large part offset by the inauguration of a weekly service from New York to Lisbon. Of the line's fleet of 28 ships, all but two were either in service or under charter to other concerns. Freight rates continue to be dominated by exigencies arising from the war.

STATE NAUTICAL SCHOOLS

On July 1, the former Navy Department responsibility for cooperation in maintenance and supervision of four State Nautical Schools was assumed by the Maritime Commission. Located in California, Massachusetts, New York, and Pennsylvania, the schools are state institutions, subject in the first three instances to the State Departments of Education and, in Pennsylvania, to the State Navigation Commission for the Delaware River. Transfer of authority from the Navy was effected through Government Reorganization Plan IV. It includes the responsibility for furnishing government vessels and equipment for schoolships and for matching state contributions up to $25,000 for each school. The Navy will continue to lend ordnance and other equipment adaptable to naval science courses which prepare graduates for enrollment in the merchant marine naval reserve. As in the past, retired naval officers will be appointed as superintendents of the schools. The New York and California institutions admit out-of-state residents at a higher fee than for those of their own states. The Pennsylvania and Massachusetts schools have restricted enrollment to residents. The Maritime Commission favors provision whereby eligible young men from any state may be admitted to the schools. As a matter of fact, the Commission plans to integrate the four schools with its own program of training cadets on merchant marine vessels to become officers. All graduates of state nautical schools are eligible to become cadet officers under the Commission's program, thus obtaining employment and experience even though no licensed officer vacancies be available at a given moment. Total enrollment of the four schoolships on July 1 amounted to 507.

THE MARITIME COMMISSION

The Maritime Commission announced on Dec. 11 that it had studied the 12 resolutions and recommendations adopted by the Inter-American Maritime Conference held at Washington and that, in connection with matters affecting the merchant marine in the inter-American trades, the Commission proposed to keep constantly in mind not only their texts but also the purposes toward which they were directed. The Commission is determined to do everything practicable, in accordance with the resolutions and recommendations, to promote the general interests of the American republics in so far as they depend upon the shipping facilities of the United States. The Commission will likewise cooperate fully with the Inter-American Financial and Economic Advisory Committee in carrying out the activities confided to it by the Conference, including compliance with Resolution 12 which requests that Committee to undertake the necessary studies for the organization of a continuing, technically qualified group of qualified representatives of the American republics to consider all appropriate measures relating to the development of inter-American maritime transportation.

On Dec. 13, the Commission invited bids for construction of five twin screw, Diesel-propelled gasoline tankers for the United States Navy. The vessels will have an overall length of 309 ft. 6 ins., a designed speed of 14 knots, and a deadweight of approximately 2,300 tons. Bids were to be opened on Jan. 9, 1941. Invitations to bid were issued on Dec. 16 for the purchase of one or more of 24 vessels from its laid-up fleet, on an "as is, where is" basis, and without restriction as to trade, service, or final disposition of the units concerned. Bids were to be opened on Jan. 7, 1941. On Dec. 17, bids were invited for the construction of a group of C-2 type, single screw cargo carriers. Prospective bidders had the privilege of quoting on from one to six ships of either Diesel or steam propulsion machinery. Leading characteristics of the vessels were: length overall 459 feet, deadweight 9,600 tons, designed speed 15½ knots, and accommodations for eight passengers. Opening of bids was set for Jan. 6, 1941. The foregoing invitation was duplicated on Dec. 19, with opening of bids set for Jan. 13, 1941.

After analysis of the tanker tonnage available for United States needs and particularly the tonnage available from Gulf to Atlantic ports north of Hatteras, the Maritime Commission was satisfied that an adequate supply would continue to be available over the peak season of the first four months of 1941. The Commission, however, expressed concern over the abrupt rise in charter rates of tank steamers in the Gulf-North Atlantic trade and urged the owners of tankers to exert their best efforts to keep such rates on a level in harmony with the elements on which they depend. Two bids were received on Dec. 23 for construction of two marine transports from Pusey & Jones, Wilmington, Del., and the Consolidated Steel Corporation Ltd., Los Angeles. The Maritime Commission's Economic Survey of 1937 said: "Shipping, in the first place, is not a business in the usual sense of the word. It is, so far as the United States is concerned, an instrument of national policy, maintained at large cost to serve the needs of commerce and defense". The chairman of the Commission, Admiral Land, in a public address early in December, expressed the opinion that "if all of us keep that realization uppermost in our thinking, we will continue to be prepared."

COMMERCIAL AVIATION

By Andrew F. Haiduck

Chief Engineer, Bellanca Aircraft Corporation

GENERAL

The long shadow of war did not prevent the usual phenomenal annual gains in civil aviation. All phases of air transportation as well as aircraft manufacture established all time records. All traffic records for the airlines were broken for the first nine months when 2,055,475 passengers were carried, a 69 per cent increase over the same period in 1939. Reliable estimates place the total for the year at 2,750,000 passengers. The load factor (ratio of seats occupied to those available) rose from 55.52 per cent in 1939 to 59.75 per cent for the first nine months of 1940.

The increased volume of traffic and the greater load factor were responsible in the main for a net income of $4,250,000 from a total operating revenue of approximately $56,000,000 for the first nine months, representing a percentage profit increase of 78.5 per cent. Air express poundage increased 29.5 per cent over the same nine months of 1939, whereas 6,683,108 pounds were carried in 1939. The total for the nine months period in 1940 was 8,647,457 pounds. Civil aircraft production showed a 69.7 per cent increase with a total of 4,543 airplanes constructed in the first three quarters of the year. Under the continued stimulus of the Civilian Pilot Training Program (C.P.T.P.) the number of pilots reached the remarkable total of 60,000 with approximately an equal number of student pilots. The long, but as yet penumbral shadow of war cast its menacing shape across the activities of civil aviation when the scheduled air lines agreed to release approximately $7,500,000 of airplanes and engines on order to facilitate delivery of long-range four engine bombers to England.

SCHEDULED AIR TRANSPORTATION

Mileage.—Domestic air carriers flew a total of 79,449,824 revenue miles in the first three quarters of 1940, an increase of almost 20,000,000 miles or 33 per cent over operations in 1939. This mileage does not include foreign or territorial services maintained by American operators. In September alone 10,084,445 miles were flown, an increase of 35.5 per cent. Cruising speeds of the latest airliners purchased in 1940 varied from 196 to 253 miles per hour. The 24-place Douglas DC-3 is still by far the most popular model in use by the operators. Powered with two 1,050 horsepower engines, this airplane carries 21 passengers with a crew of three at cruising speeds from 191 to 196 m.p.h. The Douglas DST is the standard sleeper plane with provision for 14 berths. The Lockheed 18 Lodestar is the fastest airliner in the world cruising at 253 miles per hour at 65 per cent power. This airplane carries 14 passengers and a crew of three. Already several transcontinental records, formerly held by racing airplanes, have been broken by this stock model airliner. The latest in transports introduced by Transcontinental & Western Airways was the four-engine Boeing Stratoliner, a new deal in luxury, comfort, and speed. Cruising at 222 miles per hour at the sub-stratosphere altitude of 19,000 feet, it has spacious accommodations for 33 passengers and a crew of five. Inauguration of this four-engine transcontinental service in July cut three hours and four minutes from the fastest previous eastbound schedule, the entire distance of 2,612 miles being flown in 12 hours 18 minutes. A fleet of five of these airplanes was bought by T.W.A. early in June. In September there were 339 transports of all varieties in operation on the airlines.

Mail.—For the fiscal year ended June 30, 1940 the domestic airlines carried 29,951,053 pounds of mail and pound miles totalled 18,711,583,751. The greatest amount of mail was carried by United Airlines which transported 6,847,629 pounds during the year ended June 30, 1940. American Airlines and Eastern Airlines followed in second and third place with 6,558,699 pounds and 4,280,403 pounds respectively. Total mail revenue to all operators for this same period amounted to $18,422,459 with the three largest carries, *i.e.* United, American, and Eastern receiving respectively $3,816,544, $3,846,357 and $1,764,784. For the first seven months of 1940 the air mail pound miles flown was 11,259,030,789 whereas only 9,516,103,532 were flown in the same seven-month period in 1939, an increase of 18.5 per cent. Important extensions in the air mail service were made during the year by Eastern, Braniff, T.W.A., and United. All American Aviation was granted a permanent permit to operate five pick-up and delivery air mail and express routes after a temporary experimental contract proved the feasability of the system. These routes serve 137 cities in Pennsylvania, Ohio, Delaware, Kentucky, and New York. Refinement of the original pick-up system will permit accurate and safe pick-up of 50 pound sacks of mail at speeds up to 110 miles per hour.

DOMESTIC AIR CARRIER OPERATIONS

	Sept. 1940	Sept. 1939	Per Cent Increase
Companies Reporting	19	17	
Revenue Passengers	290,919	178,219	62.5%
Pounds of Express	1,184,249	981,462	21.5%
Express Pound Miles	647,046,578	536,701,889	20.5%
Revenue Miles Flown	10,084,445	7,441,690	35.5%
Revenue Passenger Miles	108,088,317	69,082,813	56.1%
Available Passenger Seat Miles	174,238,687	112,571,606	55.5%
Load Factor	62.03%	61.37%	1.2%

FIRST NINE MONTHS—JANUARY THROUGH SEPTEMBER

	1940	1939	Per Cent Increase
Companies Reporting	19	17	
Revenue Passengers	2,055,475	1,219,928	69.00%
Pounds of Express	8,647,457	6,683,108	29.5%
Express Pound Miles	4,806,700,000	3,809,891,806	26.00%
Revenue Miles Flown	79,449,824	59,804,720	33.0%
Revenue Passenger Miles	777,716,304	481,894,712	60.5%
Available Passenger Seat-Miles Flown	1,301,073,777	868,042,018	50.1%
Revenue Passenger Load Factor	59.7%	55.52%	7.6%
* Air Mail Pound Miles	11,259,030,789	9,516,103,532	18.5%

* For first seven months of year.

Passengers.—In the first nine months of 1940 all passenger traffic records were broken when 2,055,475 passengers were carried, an increase of 69 per cent over the 1,219,928 in the same interval for 1939. The total number transported for the entire year was in the neighborhood of 2,750,000. Revenue passenger miles increased 60.5 per cent to 777,716,304 and simultaneously the load factor rose from 55.52 per cent in 1939 to 59.7 per cent for 1940. In September alone, the total number of passengers carried by the air transport operators was 290,919. The four leaders, American, United, T.W.A. and Eastern, carried respectively 93,376, 49,895, 35,991, and 33,873 passengers. These four airlines accounted for 73.5 per cent of the entire passenger traffic during the same month. Passengers accounted for the biggest single source of revenue for the carriers.

Air Express.—As usual air express showed a 29.5 per cent increase in the first nine months of the year over the same period in 1939. For the 1940 period 8,647,457 pounds were carried as compared with the 6,683,108 in 1939. Express pound miles were up to 26 per cent, the totals being 4,801,700,000 against 3,809,891,806. In September alone, pounds of express carried totalled 1,184,249 with 647,046,578 pound miles flown. The air express is in the same situation as the previous year, *i.e.* express is carried only when the space is available on the airliners. This subject has been the theme of many reports proposing all sorts of nation-wide networks to haul express only. At present the airlines do not care to invest any great amount in such an extensive system for one principal reason; the percentage of express revenue to total operating revenue from passengers, mail, and express is only 2.79 per cent. This small percentage of their total business certainly does not yet merit any large investment. However, the airlines are making a survey of possibilities in the future, rates, types of transports suitable, and methods of ground pick-up and distribution. The accelerated armament production program may make very extensive demands for additional express service. Towards the end of the year the

Army Air Corps already was using its cargo transports more than ever before. Commercially, it appears that air express is due to boom in 1941 under the impetus of the national defense effort. At present the Air Division of the Railway Express Agency has contracts with each one of the 17 airline operators for the aerial transportation of express.

Fares and Revenue.—The average passenger fare in September was $.0496 per mile. The average cost per mile flown by domestic airlines in September was 57.3 cents. In the same month the passenger revenue was $5,385,503 whereas the total revenue was $7,854,087, making the passenger revenue 68.5 per cent of the total. It is estimated by the Air Transport Association that the airlines now gross $75,000,000 annually. Further analysis of domestic airline revenues and expenses for the year ended June 30, 1940 reveals that air express revenue is a very small part of the total revenue. Passenger mail and express revenue were respectively $43,587,829, $18,422,459, and $1,808,666. The percentages of the total operating revenue of $64,896,415.00 are 67.4, 28.5, and 2.8 in the same order. The balance of 1.3 per cent is probably deferred freight. As previously mentioned the small percentage of air express does not warrant any large expenditure or expansion in this direction. The net income for the year ended June 30, 1940 transferable to surplus after allowance for Federal and state taxes was $4,309,604. It is evident that air mail contracts are still necessary to insure a net income although several of the larger operators are approaching the point where passenger revenue alone would permit a profit. In the first nine months of 1940 the domestic air carriers made more money than they made in the entire year of 1939. Net income for the nine-month period totalled approximately $4,250,000, a 78 per cent increase over the same period in 1939. The leaders in profits were American Airlines with $1,556,849 and United Air Lines with $1,133,384.

Safety.—The airlines of the United States received the Collier Trophy for their high record of safety in air travel. The Collier Trophy is awarded annually for "the greatest achievement in aviation in the United States, the value of which has been demonstrated in actual use during the preceding year." The airlines were publicly congratulated by President Roosevelt on their unprecedented record of over 1,250,000,000 miles without a fatal accident. Passengers to the number of 3,158,159 were carried in this 16-month accident free period. Two major fatal accidents in the latter part of the year served to dim only slightly the brilliant record. Special recognition was awarded to Dr. W. R. Lovelace and Dr. W. M. Boothby of the Mayo Foundation for their high altitude and pilot fatigue research. Capt. Harry C. Armstrong of the U. S. Army Air Corps at Wright Field was also cited for his contribution to the knowledge of aviation medicine.

AIRWAYS

Aids to Navigation.—At the end of the year there were 28,745 miles of Federal Airways which included the 3,432 miles added during the year. The total expenditure by the government for airways, navigation and communication aids was $8,062,142 for the 1940 fiscal year. The appropriation for 1941 totalled $11,297,047. Along the airways 368 teletype stations report weather over a distance of 27,068 miles. These same stations also handle 1,174 miles of commercial traffic control. Additional radio aids to navigation are 45 ultra high frequency fan markers, 274 radio range stations, and 42 radio marker beacons. In addition, 2,205 light beacons and 296 lighted intermediate fields comprise the ordinary aids to aerial navigation at night.

Significant in the light of world events was the expansion of airways facilities beyond the borders of the United States. The increased use of Pan American's North Atlantic service to Europe made necessary a trans-oceanic communications station. Alaska will also receive six new radio range stations and two point to point communications centers in 1941. The six radio ranges are capable of simultaneous transmission of range and communication.

Airway Traffic Control.—The greatly augmented operations in air transportation increased quite considerably the airway traffic control problem. With the addition of two airline traffic control centers at Seattle and Cincinnati there were 14 such stations in the United States. Their principal and increasingly important function is supervision and guidance of aircraft movements within their spheres of influence. In this manner aircraft on the airways are so located laterally or vertically above the airway that collisions or any other traffic accidents have been completely avoided. Oncoming aircraft are spaced 1,000 feet apart vertically. Thus complete and absolute control of traffic is maintained along all of the many airways.

Instrument Landing.—The Civil Aviation Board took delivery of a complete instrument landing system at Indianapolis in 1940. However, orders were placed for six additional systems which will be thoroughly investigated by the C.A.B., the Army Air Corps, and the Airlines before any particular type is agreed upon as a standard and infallible means for the landing of airplanes under conditions of no visibility. Plans for 1941 call for the completion and experimental operation of ten instrument landing stations on the airways by June 1941. Installations will be made at New York, Cleveland, Chicago, Los Angeles, Oakland, Seattle, Washington, D.C., Atlanta, Fort Worth, and Kansas City.

Direction Finder.—While the entire airways network still depends on the radio beam for navigation under conditions of zero visibility between stops, considerable research has been directed towards a system of keeping tabs on the planes en route from the ground. The present system requires that the pilot work out his entire orientation problem in most cases without any aid from the ground. Three such ground direction finder stations have been in experimental operation between New York, Washington, and Pittsburgh. The bearings of transmitting airplanes are indicated at the airport by a moving dot of light on an instrument. Such installations will enable pilots to verify their position at any time. Basically the system is very similar to that employed in fixing by triangulation the position of boats at sea.

Airports.—On Nov. 1 there were a total of 2,343 airports in the United States. This is only a moderate increase over the number of 2,273 listed at the same time in 1939. The detail distribution follows:

Municipal Airports	687
Commercial Airports	493
C.A.A. Intermediate Fields	288
Army Airdromes	68
Naval Air Stations	20
Auxiliary Fields (marked)	662
Private Fields	125
Total	2,343
Seaplane Bases	310

766 of the airports have night lighting equipment whereas only 14 of the seaplane bases have such night service.

Airport Program.—Reference to the above figures will immediately indicate that airports have not kept up with the expanded Civilian Pilot Training Program. The result has been an overcrowding at the fields available. However, in October Congress appropriated $40,000,000 for the start of a systematic airport expansion program. The appropriation is the first step towards the establishment of approximately 4,000 airports. The first choice will be given to fields deemed most important for national defense. The detailed statement of the purpose of the appropriation follows: "For the construction, improvement and repair of not to exceed 250 airports and other public areas in the United States and its territories and possessions, determined by the Civil Aeronautics Administrator with the approval of a board composed of the

Secretary of War, Secretary of the Navy, and Secretary of Commerce to be necessary for national defense, including areas essential for safe approaches and including the acquisition of land, $40,000,000, of which $2,000,000 shall be available for general administrative expenses, including the objects specified in Sec. 204 of the Civil Aeronautics Act of 1938, and including engineering services and supervision of construction: Provided, that this appropriation shall not be construed as precluding the use of other appropriations available for any of the purposes for which this appropriation is made."

CIVIL AERONAUTICS AUTHORITY

Reorganization Plans No. 3 and No. 4, transmitted by the President to the Congress in April 1940 under the Reorganization Act of 1939, became effective June 30, 1940. Under the Civil Aeronautics Act of 1938, the Civil Aeronautics Authority was an independent agency composed of the five-member Authority, the Administrator, and the three-member Air Safety Board.

The functions of the five-member Authority were largely regulatory in character and covered substantially the entire field of civil aeronautics. It had the responsibility for all economic regulations, including, among other matters, the issuance of certificates of public convenience and necessity to air carriers, the fixing of rates for the transportation of mail by air, and the regulation of rates for the transportation of passengers and property by air, the supervision of interlocking relationships between air carriers and others in the aeronautical industry, and passing upon contracts between air carriers affecting air transportation in certain ways. It was also responsible for all safety regulation which included the issuance of all types of safety certificates (pilot, mechanic, air carrier operating, type, production, airworthiness, etc.), promulgation of safety standards, rules, and regulations, and the enforcement of such rules and regulations by available means including the suspension and revocation of safety certificates and the initiation of proceedings to impose civil penalties. In addition, the Authority provided for the recording of title to, and the registration of, aircraft. Furthermore, the Authority had the responsibility for the administration of the Civilian Pilot Training Act of 1939.

The Administrator was responsible for the establishment, maintenance, and operation of the civil airways and all of the air navigation facilities located upon them. This included the supervision of all traffic control centers. In addition, he had the duty of promoting civil aeronautics and of carrying out certain developmental work with, and service testing of, aeronautical equipment.

The Air Safety Board had the responsibility of investigating accidents involving aircraft, reporting to the Authority the causes of such accidents and recommending the adoption of any measures designed to prevent recurrence of similar accidents in the future.

Reorganization Plan No. 3 transferred from the Authority to the Administrator of Civil Aeronautics (the new name given to the Administrator) the functions vested in the Authority by the Civilian Pilot Training Act of 1939; the functions of aircraft registration and of safety regulation described in Titles V and VI of the Civil Aeronautics Act of 1938, except the functions of prescribing safety standards, rules, and regulations and of suspending and revoking certificates after hearing; the functions provided for by Section 1101 of the Civil Aeronautics Act of 1938 relating to notices concerning hazards to air commerce; and the function of appointing such officers and employees and of authorizing such expenditures and travel as may be necessary for the performance of all functions vested in the Administrator.

Reorganization Plan No. 4 transferred the functions of the office of Administrator of Civil Aeronautics to the Department of Commerce and these functions are to be exercised by the Administrator under the direction and supervision of the Secretary of Commerce. The Plan also abolishes the offices of the Members of the Air Safety Board and consolidates the functions of the Air Safety Board with the functions of the Civil Aeronautics Authority, the name of which is changed to the "Civil Aeronautics Board." The Civil Aeronautics Board and its functions are placed within the framework of the Department of Commerce; but all of its functions are to be exercised with complete independence of the Secretary of Commerce.

FUNCTIONS OF THE CIVIL AERONAUTICS BOARD

The Board retains the functions of economic regulation which are described above and the functions of prescribing safety standards, rules, and regulations and of suspending and revoking safety certificates after hearing, including the disposition of any petition for reconsideration of a denial by the Administrator of an application for the issuance or renewal of an airman certificate. The accident investigation and related functions which were exercised by the Air Safety Board are to be exercised by the Civil Aeronautics Board, and the Board will have a staff both in Washington and in the field to assist it in this work.

FUNCTIONS OF THE ADMINISTRATOR

Many of the former functions of the Authority with respect to safety regulation are now handled by the Administrator of Civil Aeronautics who has charge of the entire field staff engaged in safety regulation duties, including aeronautical inspectors, engineering inspectors, and aircraft airworthiness engineers. Through his technical staff in the field and in Washington he must provide for the flight testing and examination of applicants for airman certificates, the examination of aircraft manufacturers' facilities to determine whether a production certificate should be issued, the examination of equipment and facilities of aircraft repair stations and flying and mechanic schools to determine whether they are qualified to receive certificates, and to maintain a continuous general supervision over the holders of all of these certificates to make certain that their original qualifications are maintained.

The Administrator also has substantial jurisdiction over the enforcement of the safety provisions of the act and of the Civil Air Regulations. There are in use at present five methods of enforcing civil air regulations: (1) reprimand, (2) transmission of information concerning violations to the Department of Justice for the initiation of proceedings to collect a civil penalty, (3) compromise of a civil penalty, (4) suspension or revocation of a certificate, and (5) denial of the renewal of a certificate upon the expiration thereof.

It is now the duty of the Administrator, through his inspection staff, to investigate violations of the safety provision of the act and of the safety standards, rules, and regulations, and through his legal staff in Washington, to take such of the above-mentioned steps as seem to him to be necessary.

In performing his function relating to air safety, the Administrator is bound by the safety standards, rules, and regulations prescribed by the Board. The Board determines and issues in the form of regulations, the qualifications for securing the various types of safety certificates and prescribes the safety standards, rules, and regulations which govern the operation of aircraft and other aeronautical activities. The Administrator may, and undoubtedly he will, recommend to the Board the issuance and amendment of such rules and regulations as his experience indicates to be necessary. On the other hand, the Board will take the initiative in prescribing new or amended safety standards, rules, and regulations where the Board feels that such action is required. Thus, in so far as safety regulation is concerned, it can be said generally that the Board prescribes the standards, rules, and regulations, and that the Administrator is primarily charged with the duty of taking or recommending action to carry them into effect. The Administrator is also responsible for the administration of the Civilian Pilot Training Act of 1939 and for the recording of title to aircraft and the registration of aircraft. All of the functions of the Administrator, unlike those of the Board, are performed under the general direction and supervision of the Secretary of Commerce.

CIVILIAN PILOT TRAINING PROGRAM

On June 15, 1940 Chairman Robert H. Hinckley of the old Civil Aeronautics Authority announced plans for the training of 50,000 pilots by July 1, 1941. The previous program turned out 9,810 pilots. The instruction of the first group of 15,000 started in June and was completed in September. The course of instructions includes 72 hours of ground work and 35 to 50 hours of flight training. This program operated in 550 centers distributed through every state, Alaska, Hawaii, and Puerto Rico. At these centers more than 500 small commercial operators furnished a thoroughly proven course of flight instruction. During the summer additional advanced instruction of 45 hours was extended to 1,000 students who had already taken their elementary training. The instructors for this advanced course were given a special refresher course of 25 hours to fit them more thoroughly for their work. During the fall semester 15,000 additional primary pilots were being trained, as well as 3,000 advanced pilots. The spring semester calls for training 15,000 more primary pilots and 5,000 advanced pilots. This training program assumed a distinctly military aspect when Administrator Col. Donald H. Connolly announced that the new C.P.T. candidates must pledge themselves to enter the air service. All applicants were also required to pass the regular military physical examination. Some difficulty has been experienced filling the quotas since this pledge requirement went into effect. However, there were a total of 60,000 pilots and approximately the same number of student pilots at the end of the year. Reliable estimates indicate that 2,600 of the pilots trained in the C.P.T. program were absorbed by the Army and Navy training centers.

AIRCRAFT PRODUCTION

A total of 4,543 civil aircraft were produced in the United States in the first nine months of 1940, a 69.7 per cent increase over the 2,698 manufactured during the same period in 1939. The one- to two-place single engine airplane still led the field with a total of 3,631 manufactured, a 61.6 per cent gain over the total of 2,247 for the same three quarters in 1939. This classification is still under the stimulus of the Civilian Pilot Training Program. The trend towards larger transport airplanes was indicated by the sharp increase in the number of 22-place or over multi-engined manufactured. The total of 93 was 178.3 per cent over the 36 constructed in 1939. The three- to five-place single engine airplane also registered a 133.8 per cent increase over 1939, when only 314 were built as against the 734 in the first three quarters of 1940. The detailed production figures by types as compiled by the Civil Air Board are given next page.

RESEARCH

General.—Accelerated by the increased appropriations, aerodynamic research was mainly directed towards the improvement of the performance of military airplanes. In most cases the research program of the National Advisory Committee for Aeronautics was closely coupled with the experimental airplanes under construction for the Army and Navy Air forces. This part of the program is naturally strictly confidential. It is sufficient to say that research is proceeding at a pace never before even remotely contemplated.

Engines.—Construction was started

DOMESTIC CIVIL AIRCRAFT

Production by Types

Type	January to September		Per Cent of Increase
	1939	1940	
Landplanes:			
1–2 place:			
Single engine	2,247	3,631	+61.6
Multiengine	2	2	
3–5 place:			
Single engine	314	734	+133.8
Multiengine	5	8	
6–20 place:			
Multiengine	14	21	
22 place and over:			
Multiengine	46	93	+178.3
Seaplanes:			
Single engine	32	17	
Multiengine	8	0	
Amphibians:			
Single engine	0	1	
Multiengine	0	1	
Unclassified	30	35	
Total single engine	2,593	4,383	+59.0
Total multiengine	75	125	+66.7
Grand Total	2,698	4,543	+69.7

Production by Engine Horsepower

Type		January to September		Per Cent of Increase
		1939	1940	
50 hp. and under:	Single engine	1,229	317	−74.2
	Multiengine	1	1	
51–70 hp:	Single engine	957	3,031	+216.7
71–100 hp:	Single engine	211	702	+232.7
101–165 hp:	Single engine	97	117	
166–225 hp:	Single engine	5	136	+2620.0
	Multiengine	1	8	
226–300 hp:	Single engine	65	26	
301–600 hp:	Single engine	29	52	
	Multiengine	14	9	
601–1,800 hp:	Single engine	0	2	
	Multiengine	59	107	140.7
Unclassified		30	35	
Total single engine		2,593	4,383	+69.0
Total multiengine		75	125	+66.7
Grand Total		2,698	4,543	+69.7

in December on the $8,400,000 airplane engine research laboratory in Cleveland, O. The laboratory was authorized by Congress to provide facilities for scientific research on fundamental problems of engine design. This new unit will be composed of an engine research wind tunnel reproducing conditions up to 30,000 feet, an engine laboratory, a fuels and lubricants laboratory, engine propeller test house, and a flight research hangar.

Production Research.—The urgency of the rearmament program stimulated particularly research into the ways and means of achieving more efficient production. Production engineering became the watchword, and all avenues that might possibly lead to more rapid production have been thoroughly investigated. Thus, one manufacturer found distinct savings in making plastic tabs and plastic bonded wooden bomb bay doors. Other manufacturers are substituting spot welding for riveting in non-structural as well as secondary structural members with marked savings. Ordinarily spot welding is ten times as fast as riveting. Research continued in the direction of the spot welding of complete structural components such as wings, fuselages and tail services.

PERIODICAL PUBLICATIONS

Aviation
330 West 42nd Street, New York City.

Bus Transportation
330 West 42nd Street, New York City.

Electrical Communication
67 Broad Street, New York City.

Electrical World
330 West 42nd Street, New York City.

Journal of the Aeronautical Sciences
30 Rockefeller Plaza, New York City.

Manufacturers News
120 South La Salle Street, Chicago.

Manufacturers Record
Baltimore, Md.

Marine Age
75 West Street, New York City.

Marine Engineering & Shipping Review
30 Church Street, New York City.

Marine Journal
5 Beekman Street, New York City.

Marine News
26 Water Street, New York City.

Marine Progress
95 Broad Street, New York City.

Mass Transportation
431 South Dearborn Street, Chicago.

National Aeronautic
Dupont Circle, Washington, D.C.

Popular Aviation
608 South Dearborn Street, Chicago.

Protectionist
38 Chauncy Street, Boston.

Railway Age
30 Church Street, New York City.

S.A.E. (journal of the Society of Automotive Engineers)
29 West 39th Street, New York City.

Shipping Digest
420 Lexington Ave., New York City.

Transit Journal
330 West 42nd Street, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

MANUFACTURERS

AMERICAN ASSN. OF CREAMERY BUTTER MANUFACTURERS, 110 N. Franklin St., Chicago, Ill.

AMERICAN AUTOMOBILE ASSN., Pennsylvania Ave. at 17th St., Washington, D.C.

AMERICAN BOTTLERS OF CARBONATED BEVERAGES, 224 Southern Building, Washington, D.C.

AMERICAN BRUSH MANUFACTURERS ASSN., 505 Arch St., Philadelphia, Pa.

AMERICAN HARDWARE MANUFACTURERS ASSN., 342 Madison Ave., New York City.

AMERICAN INSTITUTE OF STEEL CONSTRUCTION, INC., 101 Park Ave., New York City.

American Iron and Steel Institute, 350 Fifth Ave., New York City.
American Paper and Pulp Assn., 122 E. 42nd St., New York City.
American Petroleum Institute, 50 W. 50th St., New York City.
American Zinc Institute, 60 E. 42nd St., New York City.
Automobile Manufacturers Assn., 366 Madison Ave., New York City.
Mellon Institute of Industrial Research, University of Pittsburgh, Pittsburgh, Pa.
National American Wholesale Lumber Assn., 41 E. 42nd St., New York City.
National Assn. of Cotton Manufacturers, 80 Federal St., Boston, Mass.
National Assn. of Ice Industries, 228 N. La Salle St., Chicago, Ill.
National Assn. of Manufacturers, 14 W. 49th St., New York City.
National Assn. of Wool Manufacturers, 80 Federal St., Boston, Mass.
National Electrical Contractors Assn., 420 Lexington Ave., New York City.
National Electrical Manufacturers Assn., 155 E. 44th St., New York City.
National Federation of Textiles Inc., 15 W. 37th St., New York City.
National Lumber Manufacturers Assn., 1337 Connecticut Ave., Washington, D.C.
National Machine Tool Builders Assn., 1220 Guarantee Title Bldg., Cleveland, O.
National Metal Trades Assn., 60 E. 42nd St., New York City.
Rubber Manufacturers Assn., 444 Madison Ave., New York City.
United States Brewers Assn., 21 E. 40th St., New York City.
United Typothetae of America, Tower Building, 719 Fifteenth W., Washington, D.C.

TRANSPORTATION AND COMMUNICATION

Aerial League of America, 570 Lexington Ave., New York City.
American Assn. of Railroad Superintendents, 111 Union Station, St. Louis, Mo.
American Importers, Inc., 45 E. 17th St., New York City.
American Railway Engineering Assn., 59 E. Van Buren St., Chicago, Ill.
American Road Builders Assn., 95 National Press Bldg., Washington, D.C.
American Steamship Owners Assn., 64 Water St., New York City.
American Transit Assn., 292 Madison Ave., New York City.
Associated Traffic Clubs of America, Lord Baltimore Hotel, Baltimore, Md.
Association of American Railroads, Transportation Building, 17th and H Streets, Washington, D.C.
Cruft Laboratory, Harvard University, Cambridge, Mass.
International Amateur Radio Union, 38 La Salle Rd., West Hartford, Conn.
Maritime Assn. of the Port of New York, 80 Broad St., New York City.
National Aeronautics Assn., Dupont Circle, Washington, D.C.
National Highways Assn., Bass River, Cape Cod, Mass.
National Industrial Traffic League, 1 La Salle Street Bldg., Chicago, Ill.
National Traffic Service Assn., 105 N. Moore St., New York City.
North American Export Grain Assn., Inc., 2 Broadway, New York City.
Railroad Owners Assn., 502 Chandler Bldg., Washington, D.C.
Railway Business Assn., 38 S. Dearborn St., Chicago, Ill.
United States Bureau of Standards, Washington, D.C.
United States Naval Research Laboratory, Washington, D.C.

PART FIVE

SOCIAL AIMS AND CONDITIONS

DIVISION XIV

IMMIGRATION AND POPULATION

RACE CONDITIONS IN THE UNITED STATES

By Harry H. Laughlin

Research Worker in Eugenic and Racial Fields

ALIEN REGISTRATION

In the summer of 1940 it was estimated that approximately 3,600,000 aliens were in the United States, and for each of these, in order to assure completeness of personal identification and a record of purpose and legality of position in the United States, the Congress in June, 1940 enacted a law requiring the registration and fingerprinting of all noncitizens (including those who had only first naturalization papers) in the United States. In reference to race, the alien must answer: "My race is (check one:) White..; Negro..; Japanese..; Chinese..; Other.."

On Nov. 3 the Department of Justice announced that it had received the registration form and fingerprints of 2,559,706 aliens, about 71 per cent of the estimated 3,600,000 aliens in the United States, all of whom were scheduled to complete their registration by Dec. 26, 1940.

The recent Federal schedules for the census, draft-recruiting, and alien-registration have called for racial classification only into White, Negro, Yellow, Indian, and Malay groups. Within the white race none of these schedules requires further sub-classification. This limitation seems to indicate that the basic American race is considered, by the government at least, well established as a white race; that the melting pot has done its essential work; that it has made a well-integrated ethnic group after a dozen generations of reproduction by pioneer stocks continuously recruited by immigrant-stocks roughly proportional in numbers to closeness in racial stock between the immigrant and the receiving peoples.

In general this is true, but there was one major slump in the process. One generation ago, the rise of modern industry and its demand for cheap labor brought a big, new wave of immigrants into this country, many of these more distantly related in race to the older pioneer stocks than could be assimilated rapidly. This led to the more recent—1900 to 1930—restatement of immigration-control policy, which now, by statute law, limits total numbers, sets higher personal standards, excludes most non-white races, and provides that the more remotely removed from the pioneer stocks racially the fewer of the particular race will be admitted as immigrants.

REGISTRATION PRELIMINARY TO SELECTIVE DRAFT

On the card which registered (Oct. 16, 1940) American men within the ages 21 to 35 years, preliminary to selective draft, the registrant was required to state whether in race he is (1) White, (2) Negro, (3) Oriental, (4) Indian, or (5) Filipino. Thus practically only the primary races of mankind are listed; the specific race or stock is omitted. If, instead of "Filipino" the more general term "Malay", and in place of "Oriental" the less general term "Yellow" or "Mongolian", had been used, then the five basic or primary racial classes called for would have corresponded exactly with the five primary races of mankind which the students of mankind placed in our geographies and histories a generation or two ago.

In the questionnaire which follows the registration card, each registrant is called upon to supply many more detailed facts concerning himself—his identification, history, training, condition and qualifications. But in reference to his race, he is called upon to supply only the same race-descent data called for by his preliminary registration card, with the requirement of using as class "(6) Other race, specify," if needed.

PAN AMERICAN INDEPENDENCE AND RACE STANDARDS

The Second World War, if it ends in any slight compensatory values at all for the Western Hemisphere, will have to bring about the completion of Pan American independence, that is, the turning over to self rule as independent republics, or for union with adjacent American republics now existing, these colonial possessions now held by the Old World in the New.

The Western Hemisphere now comprises twenty-one republics, three self-governing dominions—Canada, Newfoundland, and Iceland, and seventeen European-governed colonies.

The present World conflict seems to have aroused anew the intention of the New World to complete Pan American independence, and to reaffirm sovereign right on the part of every Pan American state, and to establish such right by every colony. Each such unit of the New World is setting anew its own ideals and standards in education, economics, social welfare, religion, culture, and tongue; and in reference to race, being still an immigrant-receiving region, each such country is actively setting up its own race-development policy. To this end each Pan American country is evaluating for control those factors which influence immigration, mate selection, and size-of-family, and consequently is attempting to determine future race-type, family-stock quality, and number of people within its own borders.

PANAMA'S EXAMPLE

As an illustration of Pan American policy, in November, 1940 the Republic of Panama released the draft of her newly proposed Constitution. In reference to citizenship, immigration, and naturalization this draft proposes a definite racial policy. Every person born in Panama, whose father and mother are not of prohibited races, or who has one parent of a prohibited race and one who is a native-born Panamanian, is a native-born Panamanian. A child born abroad of parents born in Panama, or in territory which is now Panama, is a Panamanian. This fundamental law specifies as "forbidden immigrants" persons of (1) the Negro race whose language is not Castilian, (2) The Yellow race, and (3) The races originating in India, Asia Minor, and North Africa. The President may grant naturalization papers to any alien who has lived in Panama (1) for five years, or (2) for three years if married to a foreigner, provided they have one or more Panama-born children, or (3) for two years if married to a Panamanian.

ORIGIN OF THE AMERICAN INDIAN

Dr. Ales Hrdlicka of the Smithsonian Institution of Washington, during the summer and fall of 1940, carried on anthropological researches in Russia and Siberia during which he inspected the Neanderthal skeleton recently found in Siberia by Dr. A. P. Okladnikoff of the Anthropological Institute of Moscow. In reference to this skeleton, Hrdlicka said: "We had been hoping, but hardly daring to hope, for some such discovery, and now this young Soviet archaeologist has done it. It shows that the Neanderthal Man was widely spread over the Old World. For the first time it gives us evidence of a culture extending clear across from Europe to the Far East."

From the American side, Hrdlicka now feels that the extraordinary likeness of the skeletons of the American Indian and this newly found old Siberian offers substantial evidence to support his theory that America, originally in the later Stone Age, was first settled by the Neanderthal type of man who migrated to America from Asia by way of the Aleutian Islands and Alaska, and thence southward, here, after a few thousands of years, to become the American Indian which populated the entire Western Hemisphere as found by the European discoverers at the end of the fifteenth century.

RACE EQUALITY IN HIGHER EDUCATION

In December, 1938 the Supreme Court of the United States ruled that Floyd L. Gaines, a Missouri negro, had the right to attend the University of Missouri Law School, or a state-maintained equivalent. The effect was that the State of Missouri was compelled to provide a law school for negroes.

The Bluford case, recently decided, again tested the meaning of race equality in the field of higher education in Missouri. Miss Bluford, a colored woman journalist and citizen of Kansas City, Mo., claiming due scholastic qualifications for entry, applied to S. W. Canada, the registrar of the University of Missouri at Columbia, for admission to graduate work in its School of Journalism. She was denied admission; she thereupon brought suit in the United States District Court at Jefferson City for $10,000 damages against the registrar who denied her admission, she alleged, on account of her color.

In this more recent case, *Lucille Bluford vs. S. W. Canada,* unlike the procedure in the Gaines case, jurisdiction of the Federal court was invoked at first instance, under a Federal statute, under the Fourteenth Amendment to the Constitution of the United States, both of which provide equal protection of the law to all citizens of every state, regardless of race or color.

Under this Amendment a Federal statute (Sec. 41 of Title 8, United States Code, Annotated—Abbreviated U.S.C.A.) provides, among other things, that all persons in the jurisdiction of the United States shall have the same rights as white citizens to the full and equal benefit of all laws and proceedings, the security of person and property, and shall be subject to like obligations. Further (Sec. 43, Title 8—same code) provides that any person who "under color of any statute, ordinance, regulation, custom, or usage of any state or territory" subjects, or causes to subject, any citizen of the United States, or any persons within the jurisdiction thereof, to the deprivation of any rights, privileges or immunities secured by the Constitution and laws, shall be liable to the party injured in an action at law, or other proper proceeding for redress.

Besides alleging denial of registry in the state Graduate School of Journalism at Columbia, Miss Bluford claimed that, in response to the act passed by the Missouri legislature in 1939 providing funds for bringing Lincoln University (for negroes) up to the standard of Missouri State University (for whites), provision had not then—when she applied for admission to the State University at Columbia—been made by the Lincoln University so far as advanced journalism is concerned.

At the close of the evidence the court let the case go to the jury, which returned a verdict against Miss

Bluford and in favor of the defendant. The case may be appealed to higher Federal courts.

Missouri is a border-line state which segregates the white and black races in its public educational system, and which still is far enough north, evidently, for conducting test cases, like the Gaines and the Bluford cases, without arousing too much feeling or resentment by the races involved.

ANTI-LYNCHING BILL

On March 25, 1940 the Anti-Lynching Bill was approved by a vote of 11 to 4 in the Senate Judiciary Committee. This bill, as approved by the Senate Committee, had already passed the House of Representatives. It provides fines and imprisonments for state officers who permit a lynching to occur, and subjects state sub-divisions to civil liability. For the most part, the Southern senators are opposing the bill as an invasion of state rights, and the Northern senators favor it as a guarantee of the constitutional rights of the negro.

NEGRO AND WHITE SOLDIERS SEGREGATED

On October 10, 1940, President Roosevelt approved of the system of segregating negro and white soldiers in the expanding military service. The segregation was approved by the National Association for the Advancement of Colored People, but it raised the "Jim Crow" cry in some quarters, because certain proponents of negro advance had been expecting no color line in the new army.

Later, Benjamin O. Davis, described by *Time* (Nov. 4, 1940) as "an able, tea-colored colonel", was promoted to the rank of Brigadier General having formerly commanded the colored 369th Coast Artillery. His new brigade will be composed of colored cavalry, all other officers of which will be white. General Davis is the first negro to reach the rank of general officer in the United States Army. General Davis' son, Captain B. O. Davis, Jr. who is "the only other black line officer in the regular service," is a West Point graduate, and at the time of his father's advancement was military instructor at Tuskegee Institute, Alabama.

NEGRO UNION LABOR

In America, there are approximately 5,500,000 Negroes gainfully employed, but only about 175,000 are members of labor unions. The C.I.O. admits negroes freely and prohibits "Jim Crow" unions. The A.F.L. condemns race discrimination and admits negroes; still some 20 of its unions draw the color line. Finally, however, the A.F.L. has chartered an all-Negro union called the Brotherhood of Sleeping Car Porters. It claims 7,200 of the Pullman company's 8,300 colored employees.

JEWISH IMMIGRANT-QUOTA POSITION

The Jew, among all admissible immigrants into the United States, has the most favorable quota position, racially. The alien Jew, being a white person eligible to naturalization by the United States, can enter this country under the quota of his home country whatever nation it might happen to be. Thus, if the alien Jews be alert and aggressive enough, they can practically consume the current annual quotas of their Old World home.

During the period 1908 to 1937 inclusive, 12.7 per cent of all immigrants into the United States were Jews. The Jews have thus availed themselves not of a racial or national quota of their own, but in their several Old World resident countries, of the place-where-born rule which allots the number of immigrants eligible to naturalization annually admissible into the United States from each foreign country.

An independent quota for Jews annually admissible into the United States, regardless of their own host country but based upon the total number of Jews in the United States, who at the quota-basis date (1920) constituted about three or three and one-half per cent of the entire population of the United States, would, during the present crucial period in Jewish emigration from Europe, have limited the annual Jewish immigration into the United States to approximately one-tenth of the actual number of Jews legally admitted in 1937 as an example-year, and during the last three decades, if such a quota had then been in operation, to approximately one-third or one-fourth of their number actually admitted.

LEGAL IMPORTANCE OF PLACE-WHERE-BORN

Good government requires that, within the province of government, laws for the control of human affairs be based upon the "natural class" of subject individuals and groups rather than upon artificially made-up classes which, later experience shows, are much more apt to discriminate in favor of one lot of citizens against another. When place-where-born once establishes the right to citizenship and equality, natural classes, as subjects for law, may much more safely be based upon race, religion, age, economic condition, physical health, mental health, natural intelligence, conduct, occupation, or the like.

In the United States which permits no race discrimination whatever some of its constituent states provide for the segregation of white and negro races in schools, public conveyances, hotels, churches and in mate selection. This is held by the courts, supported by public sentiment, to be well within the natural-class requirement and not to constitute discriminatory class legislation, provided each such natural class be offered equality in civil right and opportunity.

Place-where-born, as the well established basis for citizenship, requires that the state lose its power of exile or banishment and postulates that the "home country" can not refuse to receive back one of its own citizens deported from the territory of another country as an alien.

There will always be differences in race, as natural legal classes, but when a person is once born within a particular territory, during his whole life he is entitled to citizenship and to equality in opportunity which enables him to advance in accordance with his own natural talents and limitations and his own actual effort and conduct. For example, the further development of legal forces of the place-where-born rule would not prevent negotiations for the development of a new Zion for the Jews, nor for the return of American negroes to Liberia, but such movements could not be forced by the home countries of the particular natural-born citizens. Thus "place-where-born" presents sound reasons to be made the universal basis of freedom, equality and first citizenship.

While the current Federal schedules on census and registration require race classification according to primary races only, still the Federal Government in its recent National-Origins Immigration-Quota Act uses place-where-born as one of its major admission quota bases. This law makes no direct mention of secondary, that is specifically named races as such but bases the number of immigrants admissible annually from within the geographic boundary of the particular immigrant-exporting country upon the contribution of the particular country and race to the race composition of the American people. In practice this works well, because most emigrant-exporting countries are old-established one-race nations. Thus most people born in England are English, in France are French, in Holland are Dutch, in Germany are German, and so on.

CURRENT PROBLEM IN RACE ASSIMILATION

The Japanese blood for one or two generations in Hawaii and California, the Italian blood for a generation in many parts of the nation, and the older-admitted German blood in all parts of the country; and with the German, Italian, and Japanese home countries now allied apparently against the United States, this situation presents an excellent opportunity for students of race and history to collect and to analyze new data on (1) nearness of blood-kin of the immigrant to the main body of receiving American, (2) the number and distribution of the members of the particular immigrant-race compared with the receiving population, and (3) time elapsed since immigrant-entry, each as one of the three major factors which influences (a) the degree of completeness and (b) the rate of assimilation of immigrants as Americans—100 per cent, unhyphenated.

POPULATION STATISTICS

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POPULATION GROWTH

The population of continental United States on April 1, 1940, the date of the Sixteenth Census, was 131,669,275, as compared with 122,775,046 on April 1, 1930, the date of the Fifteenth Census. The increase in population during the decade just completed thus amounted to 8,894,229 persons. While this is a considerable number, it represents a gain of only 7.2 per cent, which is the smallest ever recorded in our census history.

In 1790, when the first census was taken, the population was just short of 4,000,000. Each subsequent decennial census up to 1860 showed an increase of about one-third over the preceding one; from 1860 to 1910 the decennial increase was around 20 or 25 per cent; for the next two census decades the figures were only 15 or 16 per cent; and for the period from 1930 to 1940 the increase, as indicated above, was only 7.2 per cent, or less than one-half the smallest previous percentage increase. The data for the Sixteenth Census are given in the following table.

The two principal causes for the slowing down of population growth are the cessation of foreign immigration and the decrease in the birth rate. During the decade 1930-1940, net emigration exceeded net immigration by more than 45,000, as compared with a net immigration of about 3,250,000 between 1920 and 1930. The observed population growth during this decade is, therefore, due entirely to natural increase, the excess of births over deaths.

The birth rate in the United States has been declining for several decades. The lowest point was reached in 1933, when births averaged only 16.6 per 1,000 of the population. Since this time there has been a slight increase, but the general rate in 1939 was still only 17.3 per 1,000. In 1921 the birth rate for the 27 states then in the registration area was 24.2. By these two factors our average annual increase in population has been reduced from about 1,700,000 between 1920 and 1930 to about 900,000 in the decade just past.

In 1940 the net reproduction rate for the United States was about 96, as contrasted with 111 in 1930. The net reproduction rate is a measure of the degree to which a population will, in the long run, reproduce it-

POPULATION OF THE UNITED STATES: 1790 TO 1940

Census Year	Population	Increase Over Preceding Census	
		Number	Per Cent
1940	131,669,275	8,894,229	7.2
1930	122,775,046	17,064,426	16.1
1920	105,710,620	13,738,354	14.9
1910	91,972,266	15,977,691	21.0
1900	75,994,575	13,046,861	20.7
1890	62,947,714	12,791,931	25.5
1880	50,155,783	10,337,334*	26.0
1870	*39,818,449	8,375,128*	26.6
1860	31,443,321	8,251,445	35.6
1850	23,191,876	6,122,423	35.9
1840	17,069,453	4,203.433	32.7
1830	12,866,020	3,227,567	33.5
1820	9,638,453	2,398,572	33.1
1810	7,239,881	1,931,398	36.4
1800	5,308,483	1,379,269	35.1
1790	3,929,214	....	....

* Revised figure.

self; a net rate of 100 would mean that birth and death rates were such that the population would neither increase nor decrease. The net reproduction rate of 96, therefore, means that under present fertility and mortality conditions the United States population will eventually fail to maintain its numbers by approximately four per cent per generation. A significant difference in this respect exists between the white and non-white population of this country. If present birth and death rates continue, the non-white population of this country will, in the long run, increase at the rate of about 7 per cent per generation, while the white population will decrease at the rate of about 5 per cent per generation.

On the assumption that present trends will continue, it is estimated that our population will be about 139,000,000 in 1950 and about 144,000,000 in 1960. By 1970 or 1980 the population will probably have reached its maximum and will remain stationary or even begin to decline.

The most significant data on births and deaths which need to be considered in any study of probable future trends in population are presented in the following table, which gives for each year from 1920 to 1939 the number of births and deaths reported in the registration area, with estimates for the United States as a whole, the annual rates per 1,000 of the population, and a 3-year moving average rate which indicates the changes with less variation on account of fortuitous conditions than the single-year rates. Estimated totals for the United States are also given for the years from 1920 up to the time (1933) when all states were included in the registra-

BIRTHS AND DEATHS IN THE REGISTRATION AREA: 1920 TO 1939

(The birth registration area included 59.8 per cent of the total population of the country in 1920 and the death registration area 82.2 per cent; in 1933 both areas had been extended to include the entire country.)

Year	Births Registered			Deaths Registered			United States Totals Partly Estimated for Years Prior to 1933 (thousands)		
	Number of Births	Rate per 1,000 Population		Number of Deaths	Rate per 1,000 Population				
		Annual	3-Year Moving Average		Annual	3-Year Moving Average	Births	Deaths	Excess of Births Over Deaths
1939......	2,265,588	17.3	...	1,387,897	10.6	...	2,266	1,388	878
1938......	2,286,962	17.6	17.3	1,381,391	10.7	10.9	2,287	1,381	906
1937......	2,203,337	17.1	17.2	1,450,427	11.3	11.2	2,203	1,450	753
1936......	2,144,790	16.8	17.0	1,479,228	11.6	11.3	2,145	1,479	666
1935......	2,155,105	17.0	17.0	1,392,752	11.0	11.2	2,155	1,393	762
1934......	2,167,636	17.2	16.9	1,396,903	11.1	10.9	2,168	1,397	771
1933......	2,081,232	16.6	17.1	1,342,106	10.7	10.9	2,081	1,342	739
1932......	2,074,042	17.5	17.4	1,308,529	10.9	10.9	2,178	1,360	818
1931......	2,112,760	18.0	18.1	1,322,587	11.1	11.1	2,232	1,374	858
1930......	2,203,958	18.9	18.6	1,343,356	11.4	11.5	2,328	1,396	932
1929......	2,169,920	18.9	19.2	1,386,363	11.9	11.8	2,291	1,448	843
1928......	2,233,149	19.8	19.8	1,378,675	12.1	11.8	2,368	1,446	922
1927......	2,137,836	20.6	20.4	1,236,949	11.4	11.9	2,440	1,352	1,088
1926......	1,856,068	20.7	20.9	1,285,927	12.3	11.8	2,412	1,428	984
1925......	1,878,880	21.5	21.5	1,219,019	11.8	11.9	2,467	1,360	1,107
1924......	1,930,614	22.4	22.0	1,173,990	11.7	11.9	2,534	1,328	1,206
1923......	1,792,646	22.2	22.3	1,193,017	12.2	11.9	2,478	1,360	1,118
1922......	1,774,911	22.3	22.9	1,101,863	11.7	11.8	2,456	1,290	1,166
1921......	1,714,261	24.2	23.4	1,032,009	11.6	12.1	2,622	1,253	1,369
1920......	1,508,874	23.7	...	1,142,558	13.0	...	2,522	1,389	1,133

POPULATION STATISTICS

POPULATION OF THE UNITED STATES, BY STATES

[A minus sign (−) denotes decrease.]

Division and State	Population		Increase 1930–1940	Per Cent of Increase	
	1940	1930		1930–1940	1920–1930
United States total	131,669,275	122,775,046	8,894,229	7.2	16.1
Geographic Divisions:					
New England	8,437,290	8,166,341	270,949	3.3	10.3
Middle Atlantic	27,539,487	26,260,750	1,278,737	4.9	18.0
East North Central	26,626,342	25,297,185	1,329,157	5.3	17.8
West North Central	13,516,990	13,296,915	220,075	1.7	6.0
South Atlantic	17,823,151	15,793,589	2,029,562	12.9	12.9
East South Central	10,778,225	9,887,214	891,011	9.0	11.2
West South Central	13,064,525	12,176,830	887,695	7.3	18.9
Mountain	4,150,003	3,701,789	448,214	12.1	11.0
Pacific	9,733,262	8,194,433	1,538,829	18.8	47.2
New England:					
Maine	847,226	797,423	49,803	6.2	3.8
New Hampshire	491,524	465,293	26,231	5.6	5.0
Vermont	359,231	359,611	−380	−0.1	2.0
Massachusetts	4,316,721	4,249,614	67,107	1.6	10.3
Rhode Island	713,346	687,497	25,849	3.8	13.7
Connecticut	1,709,242	1,606,903	102,339	6.4	16.4
Middle Atlantic:					
New York	13,479,142	12,588,066	891,076	7.1	21.2
New Jersey	4,160,165	4,041,334	118,831	2.9	28.1
Pennsylvania	9,900,180	9,631,350	268,830	2.8	10.5
East North Central:					
Ohio	6,907,612	6,646,697	260,915	3.9	15.4
Indiana	3,427,796	3,238,503	189,293	5.8	10.5
Illinois	7,897,241	7,630,654	266,587	3.5	17.7
Michigan	5,256,106	4,842,325	413,781	8.5	32.0
Wisconsin	3,137,587	2,939,006	198,581	6.8	11.7
West North Central:					
Minnesota	2,792,300	2,563,953	228,347	8.9	7.4
Iowa	2,538,268	2,470,939	67,329	2.7	2.8
Missouri	3,784,664	3,629,367	155,297	4.3	6.6
North Dakota	641,935	680,845	−38,910	−5.7	5.3
South Dakota	642,961	692,849	−49,888	−7.2	8.8
Nebraska	1,315,834	1,377,963	−62,129	−4.5	6.3
Kansas	1,801,028	1,880,999	−79,971	−4.3	6.3
South Atlantic:					
Delaware	266,505	238,380	28,125	11.8	6.9
Maryland	1,821,244	1,631,526	189,718	11.6	12.5
District of Columbia	663,091	486,869	176,222	36.2	11.3
Virginia	2,677,773	2,421,851	255,922	10.6	4.9
West Virginia	1,901,974	1,729,205	172,769	10.0	18.1
North Carolina	3,571,623	3,170,276	401,347	12.7	23.9
South Carolina	1,899,804	1,738,765	161,039	9.3	3.3
Georgia	3,123,723	2,908,506	215,217	7.4	0.4
Florida	1,897,414	1,468,211	429,203	29.2	51.6
East South Central:					
Kentucky	2,845,627	2,614,589	231,038	8.8	8.2
Tennessee	2,915,841	2,616,556	299,285	11.4	11.9
Alabama	2,832,961	2,646,248	186,713	7.1	12.7
Mississippi	2,183,796	2,009,821	173,975	8.7	12.2
West South Central:					
Arkansas	1,949,387	1,854,482	94,905	5.1	5.8
Louisiana	2,363,880	2,101,593	262,287	12.5	16.9
Oklahoma	2,336,434	2,396,040	−59,606	−2.5	18.1
Texas	6,414,824	5,824,715	590,109	10.1	24.9
Mountain:					
Montana	559,456	537,606	21,850	4.1	−2.1
Idaho	524,873	445,032	79,841	17.9	3.0
Wyoming	250,742	225,565	25,177	11.2	16.0
Colorado	1,123,296	1,035,791	87,505	8.4	10.2
New Mexico	531,818	423,317	108,501	25.6	17.5
Arizona	499,261	435,573	63,688	14.6	30.3
Utah	550,310	507,847	42,463	8.4	13.0
Nevada	110,247	91,058	19,189	21.1	17.6
Pacific:					
Washington	1,736,191	1,563,396	172,795	11.1	15.2
Oregon	1,089,684	953,786	135,898	14.2	21.8
California	6,907,387	5,677,251	1,230,136	21.7	65.7

tion area; and in the final column, the excess of births over deaths, or the actual amount of the reported natural increase of the population.

POPULATION GROWTH IN THE STATES

The District of Columbia, with an increase of 36.2 per cent, grew faster between 1930 and 1940 than any of the states. The fastest growing state was Florida, with an increase of 29.2 per cent, followed by New Mexico, with 25.6 per cent, and California, with 21.7 per cent. Six states—Kansas, Nebraska, North Dakota, Oklahoma, South Dakota, and Vermont—lost population between 1930 and 1940. The first five of these states are located in the Great Plains and constitute a tier of states in the Dust Bowl extending from Canada to Texas.

In absolute amount, the increase of population in California was considerably greater than in any other state, being 1,230,136 as compared with 891,076 in New York, the next state in this respect. In ten other states—Texas, Florida, Michigan, North Carolina, Tennessee, Pennsylvania, Illinois, Louisiana, Ohio, and Virginia—the increase in population between 1930 and 1940 exceeded 250,000.

Taking the states in large groups, it may be noted that all of the Northern States, that is, the first four of the geographic divisions shown in the table, which had nearly 60 per cent of the 1930 population, show only about one-third of the increase between 1930 and 1940. The Southern States (comprising the next three geographic divisions), which had less than 31 per cent of the 1930 population, show nearly 43 per cent of the increase; and the Western States (comprising the Mountain and Pacific Divisions), which had less than 10 per cent of the 1930 population, show more than 22 per cent of the increase.

It may be noted that practically all of the industrial states show a rate of increase less than the national average, and that even if the Dust Bowl states, with actual decreases in population, were omitted, the four Northern Divisions would still show a much smaller fraction of the increase than they had of the actual population either in 1930 or in 1940. To some extent, the relatively more rapid rate of increase in the Southern States is the result of their higher birth rates, coupled with the fact that, under present employment conditions, a much larger fraction of their population increase has probably remained within these states than in recent previous decades. The increase on the Pacific Coast probably represents the continued settlement and development of new territory, since these states represent the last of the well watered lands to be occupied in continental United States. The especially rapid growth in California is presumably attributable also to the tendency of certain classes of the population to migrate toward areas of a warmer climate, this same tendency probably explaining also the rapid growth in Florida.

POPULATION OF THE COUNTRY WITH POSSESSIONS

The population of the United States and all its territories and possessions, including the Philippines, in 1940, was 150,621,231, as indicated in the table below. This figure represents an increase of 12,182,162, or 8.8 per cent, over the 1930 population of 138,439,069.

Excluding the Philippine Islands (for which only estimated figures are available), there were 134,265,231 persons in continental United States and its Territories and possessions on April 1, 1940, as compared with 124,926,069 in 1930, an increase of 9,339,162, or 7.5 per cent.

OUTLYING TERRITORIES AND POSSESSIONS

In contrast with continental United States, the territories and possessions as a group, not considering the Philippines, grew a little faster during the decade 1930-1940 than they had in the previous ten years, gaining 20.7 per cent as compared with 19.6 per cent. In Alaska, American Samoa, and Puerto Rico the rates of growth

POPULATION OF THE UNITED STATES AND ITS TERRITORIES AND POSSESSIONS

Area	Population		Increase	
	1940	1930	Amount	Per Cent
United States and all Territories and possessions	150,621,231	138,439,069	12,182,162	8.8
United States and Territories and possessions, excluding Philippine Islands	134,265,231	124,926,069	9,339,162	7.5
Continental United States	131,669,275	122,775,046	8,894,229	7.2
Territories and possessions, excluding Philippine Islands	2,595,956	2,151,023	444,933	20.7
Alaska	[1]72,524	[1]59,278	13,246	22.3
American Samoa	12,908	10,055	2,853	28.4
Guam	22,290	18,509	3,781	20.4
Hawaii	423,330	368,336	54,994	14.9
Panama Canal Zone	51,827	39,467	12,360	31.3
Puerto Rico	1,869,255	1,543,913	325,342	21.1
Virgin Islands	24,889	22,012	2,877	13.1
Military and naval services, etc., abroad	118,933	89,453	29,480	33.0
Philippine Islands	[2]16,356,000	[3]13,513,000	2,843,000	21.0

[1] Census taken as of October 1 of the preceding year.

[2] Estimate derived by extrapolation from the census figures for 1918 (10,314,310) and 1939 (16,000,303).

[3] Estimate derived by interpolation from the census figures for 1918 and 1939.

during the decade 1930-1940 were above those for the period 1920-1930. In Hawaii, on the other hand, population growth has decreased markedly since 1930 as compared with previous periods. In the decade 1930-1940 the Hawaiian population increased by 14.9 per cent as compared with 43.9 per cent in the previous decade and 33.4 per cent in the decade 1910-1920.

The population of Alaska decreased by 14.5 per cent between 1910 and 1920, then increased by 7.7 per cent during the following ten years, and increased 22.3 per cent in the decade just ended. Puerto Rico, in contrast to Alaska, has shown considerably less change from one census to the next, but nevertheless has grown more rapidly during each successive decade —16.3 per cent in the period 1910-1920, 18.8 per cent in the period 1920-1930, and 21.1 per cent in the ten years 1930-1940.

URBAN-RURAL DISTRIBUTION

The United States in 1790 was an agricultural nation, with only 5.1 per cent of its population living in urban areas. (For census purposes all incorporated places—cities, villages, boroughs, etc.—with a population of 2,500 or more are considered urban.) A rapid growth of urban centers took place during the nineteenth century, with the result that in 1850, of a total population numbering 23,191,876, there were 3,543,716, or 15.3 per cent, in urban places. By 1900 there were 30,159,921 persons, or 39.7 per cent of the total of 75,994,575, living in urban places. In 1920 the urban population for the first time formed more than one-half the total, and in 1930 56.2 per cent of the population was urban. The increase in the urban population itself during the nineteenth century was phenomenal; between 1840 and 1850 it almost doubled, increasing by 92.1 per cent. An increase of 39.3 per cent occurred between 1900 and 1910, and an increase of 27.3 per cent between 1920 and 1930.

In contrast with these large increases, the urban population of the United States grew only 7.9 per cent between 1930 and 1940. In 1940 there were 74,423,702 persons living in urban places, as compared with 68,954,823 in 1930. The urban population formed 56.5 per cent of the total in 1940, and 56.2 per cent in 1930. The rural population—that in the open country and in incorporated places of less than 2,500—numbered 57,245,573 in 1940, or 43.5 per cent of the total. In 1930 it was 53,820,223, or 43.8 per cent of the total. The rural population thus increased 6.4 per cent between 1930 and 1940, as compared with 4.4 per cent in the previous decade. The following table shows the total and urban population at each census since 1790, with the percentage urban. The series of urban percentages reflects the progress of urbanization up to 1930, and the very slight increase between 1930 and 1940 indicates the rather abrupt change in the urban trend already noted above.

URBAN POPULATION OF THE UNITED STATES: 1790 TO 1940

(Classified in accordance with method followed in 1930 and 1940; previously published figures for 1880 to 1920 revised accordingly)

Census Year	Total Population	Urban Population	
		Number	Per Cent of Total
1940	131,669,275	74,423,702	56.5
1930	122,775,046	68,954,823	56.2
1920	105,710,620	54,157,973	51.2
1910	91,972,266	41,998,932	45.7
1900	75,994,575	30,159,921	39.7
1890	62,947,714	22,106,265	35.1
1880	50,155,783	14,129,735	28.2
1870	*38,558,371	9,902,361	25.7
1860	31,443,321	6,216,518	19.8
1850	23,191,876	3,543,716	15.3
1840	17,069,453	1,845,055	10.8
1830	12,866,020	1,127,247	8.8
1820	9,638,453	693,255	7.2
1810	7,239,881	525,459	7.3
1800	5,308,483	322,371	6.1
1790	3,929,214	201,655	5.1

* Population actually returned in 1870 census; urban-rural classification not available for revised total (39,818,449).

The rural population may be subdivided into rural-farm and rural-non-farm population, the first group including persons living on farms in rural areas, and the second the population in unincorporated towns or villages, incorporated places of less than 2,500, and in non-farm areas in the open country. All of the increase noted in the rural population was due to the growth of the rural-non-farm group, which increased 14.5 per cent between 1930 and 1940, as compared with only 6.4 per cent for the rural population as a whole. The rural-farm population remained practically unchanged, decreasing by less than one-half of one per cent.

The comparatively slight growth of the urban areas between 1930 and 1940 is doubtless due principally to the economic conditions of the 1930's, which markedly reduced the opportunities for employment in the cities. The cessation of immigration also played a part in reducing the rate of urban growth, and the drop in the rate of natural increase also contributed somewhat.

The greatest city growth took place, not in the large cities of 100,000 or more, but in the smaller places of less than 100,000. Preliminary figures suggest that there is an increasing tendency for urban people to move outside the corporate areas of the cities and to settle in the adjacent small towns and unincorporated areas.

AGE AND SEX COMPOSITION

The average age of our population is steadily increasing. The median age rose from 26.4 years in 1930 to 28.9 years in 1940, and will very probably increase still further. Persons 65 years old or over numbered 8,956,206 in 1940, as compared with 6,633,805 in 1930, the change representing an increase of 35 per cent.

The sex ratio (number of males per 100 females) fell from 102.5 in 1930 to 101.1 in 1940, according to preliminary census figures. The proportions of whites and non-whites remained substantially unchanged between the last two censuses; 89.8 per cent of the population was classified as white (including Mexicans) and 10.2 per cent was returned as non-white.

The white population as a whole increased 7.2 per cent between 1930 and 1940, and the non-white population increased 7.7 per cent. When these two classes are analyzed by urban and rural residence, however, marked differences in the pattern of growth become apparent. Whereas the urban white population increased 6.9 per cent, the urban non-white population increased 19.6 per cent, or nearly one-fifth. The rural white population as a whole increased 7.5 per cent, but the rural non-white population actually decreased by 1.3 per cent. In rural-non-farm areas the white population increased by 15.5 per cent, but the non-white population had a growth of only 4.8 per cent. In rural-farm areas the white population increased very slightly (0.7 per cent), and the non-white showed a 3.9 per cent decrease.

EMPLOYMENT STATUS

Provision was made in the 1940 census for classifying all persons 14 years old and over according to their

EMPLOYMENT STATUS OF PERSONS 14 YEARS OF AGE AND OVER, BY SEX, IN THE UNITED STATES: MARCH 24-30, 1940

(Figures are based on a preliminary tabulation of a five per cent sample of the census returns.)

Employment Status	Total	Male	Female	Per Cent Distribution		
				Total	Male	Female
Total population	131,669,275	66,183,163	65,486,112			
Persons 14 years of age and over	100,972,196	50,614,304	50,357,892	100.0	100.0	100.0
In the labor force	52,840,762	39,994,197	12,846,565	52.3	79.0	25.5
Employed (except on public emergency work)	45,350,430	34,201,490	11,148,940	44.9	67.6	22.1
At work[1]	44,049,743	33,250,189	10,799,554	43.6	65.7	21.4
With a job[2]	1,300,687	951,301	349,386	1.3	1.9	0.7
On public emergency work (WPA, NYA, and CCC)[3]	2,380,062	1,947,975	432,087	2.4	3.8	0.9
Seeking work[4]	5,110,270	3,844,732	1,265,538	5.1	7.6	2.5
Experienced workers	4,313,575	3,362,671	950,904	4.3	6.6	1.9
New workers[5]	796,695	482,061	314,634	0.8	1.0	0.6
Not in the labor force	48,131,434	10,620,107	37,511,327	47.7	21.0	74.5
Engaged in home housework	28,838,484	286,804	28,551,680	28.6	0.6	56.7
In school	9,070,986	4,615,015	4,455,971	9.0	9.1	8.8
Unable to work	5,220,098	2,953,658	2,266,440	5.2	5.8	4.5
In institutions[6]	1,226,374	795,616	430,758	1.2	1.6	0.9
Other	1,986,348	1,211,330	775,018	2.0	2.4	1.5
Unknown[7]	1,789,144	757,684	1,031,460	1.8	1.5	2.0

[1] Persons who worked for pay or profit (except on public emergency work), or assisted without pay in a family enterprise, at any time during the week of March 24 30, 1940.

[2] Persons who had jobs (except on public emergency work), businesses, or professional enterprises at which they did not work during the week of March 24–30, 1940, because of temporary illness, vacation, industrial dispute, bad weather, or layoff not exceeding 4 weeks with instructions to return by a specific date.

[3] The number of persons reported in the census as on public emergency work was considerably below the number indicated by the records of the various emergency work agencies. It is probable that the majority of such workers who were not properly classified were returned as employed on private or non-emergency government work.

[4] Persons not at private or non-emergency government work, nor on public emergency work, who were seeking work during the week of March 24–30, 1940.

[5] Persons seeking work who had not previously worked full time for one month or more at a single job.

[6] Inmates of penal institutions, hospitals for the mentally diseased or defective, and homes for the aged, infirm, and needy.

[7] Includes some persons whose activity during the week of March 24–30, 1940, could not be definitely determined. It is believed that the majority of these were not in the labor force.

status in the labor force or their relation to the labor force during the week of March 24-30, 1940, this representing a considerable change from the practice in earlier censuses, in which all persons who reported that they usually followed a gainful occupation were counted as gainful workers. A summary of this classification, based on a preliminary tabulation of a 5 per cent cross-section of the census returns, is presented in the table on preceding page.

According to these figures there were 100,972,196 persons 14 years old and over, of whom 52,840,762 were in the labor force. The labor force included three main groups: 45,350,430 persons who were at work on private or non-emergency government work, or who had jobs from which they were temporarily absent; 2,380,062 persons who were on public emergency projects (WPA, NYA, CCC, etc.); and 5,110,270 who were seeking work and who were without any form of public or private employment. Because of difficulties peculiar to the enumeration of public emergency workers, the employment status of a considerable number of such workers was improperly classified. The emergency agencies reported a total of approximately 2,906,000 persons on their rolls at about the time of the census week, not including 472,000 persons on the NYA Student Work Program.

PER CENT DISTRIBUTION BY EMPLOYMENT STATUS OF PERSONS 14 YEARS OF AGE AND OVER IN THE LABOR FORCE, BY SEX, FOR THE UNITED STATES, MARCH 24-30, 1940

(Figures are based on a preliminary tabulation of a five per cent sample of the census returns.)

Employment Status	Total	Male	Female
Total in the labor force	100.0	100.0	100.0
Employed (except on public emergency work)	85.8	85.5	86.8
At work	83.4	83.1	84.1
With a job	2.5	2.4	2.7
On public emergency work (WPA, NYA, and CCC)	4.5	4.9	3.4
Seeking work	9.7	9.6	9.9
Experienced workers	8.2	8.4	7.4
New workers	1.5	1.2	2.4

The percentage distribution of the persons in the labor force among the various categories in the classification is shown in the foregoing table:

The 48,131,434 persons not in the labor force represented 47.7 per cent of the total population 14 years old and over and included 28,838,484 persons engaged in home housework, 9,070,986 persons attending school, 5,220,098 persons unable to work, 1,226,374 inmates of institutions, 1,986,348 persons not working or seeking work for other reasons, and 1,789,144 persons whose employment status during the census week could not be determined.

HOUSING DATA

The 1940 Census of Housing was taken in conjunction with the Census of Population, by the same enumerators. The main purpose of the housing inquiries was to obtain detailed information about the living quarters occupied by the population of the United States. From the Housing Census were obtained also a number of fundamentally important items which have previously been obtained on the Population Schedule, such as tenure of home and size of family or household. Certain new designations have been made necessary by the added detail called for in this census. A dwelling unit, as the term is here used, is the living quarters occupied by one family or household. In an apartment house there are, therefore, as many dwelling units as there are separate apartments.

The more significant of the available housing items are summarized in the following table, which gives the figures for urban and rural areas as well as for the United States as a whole. Of the 37,336,890 dwelling units reported in the entire country, 1,884,016, or 5 per cent, were returned as vacant and for sale or rent, while 591,249 were returned as vacant (or at least not occupied by regularly enumerated census families) and not for sale or rent. This last group was made up rather largely of seasonal dwelling units (summer homes, etc.) held for later occupancy by households not living in them at the time of the census.

The percentage of dwelling units vacant and on the market in urban areas was only 4.3, as compared with 6.1 in rural areas. The dwelling units reported include both seasonal and ordinary units, and the larger percentage vacant in rural territory is explained in part by the large number of seasonal units in rural areas.

The number of occupied dwelling units represents approximately the number of private households in the respective areas and may, therefore, be compared roughly with the number of private families shown in the Census Reports for 1930. Such a comparison reveals that the number of private households increased approximately 16.6 per cent. This increase is considerably more than the 7.2 per cent increase shown in population in the United States between 1930 and 1940. The average population per occupied dwelling unit in 1940 was 3.8 for the United States as a whole, as compared with an average population per family of 4.1 in 1930. More than half of the increase in number of families in the decade is thus due to a decline in the family size and less than half to population increase.

NUMBER OF DWELLING UNITS, OCCUPIED AND VACANT, IN URBAN AND RURAL AREAS OF THE UNITED STATES: 1940, WITH 1930 FAMILY DATA

Item	Total	In Urban Places		In Rural Territory
		Number	Per Cent of Total	
1940				
All dwelling units	37,336,890	21,621,985	57.9	15,714,905
Occupied dwelling units	34,861,625	20,598,506	59.1	14,263,119
Vacant, for sale or rent	1,884,016	923,235	49.0	960,781
Per cent of all dwelling units	5.0	4.3	....	6.1
Vacant, not for sale or rent*	591,249	100,244	17.0	491,005
Total population	131,669,275	74,423,702	56.5	57,245,573
Average population per occupied dwelling unit	3.8	3.6	....	4.0
1930				
Total population	122,775,046	68,954,823	56.2	53,820,223
Private families	29,904,663	17,372,524	58.1	12,532,139
Average population per private family	4.1	4.0	....	4.3

* Mainly vacant dwelling units (largely seasonal) held for absent households, together with a few dwelling units occupied by nonresident households.

The decline in the average population per family from 4.1 in 1930 to 3.8 in 1940 indicates the continuation, at an accelerated rate, of the downward trend in family size which is shown by the following averages from earlier censuses: 4.9 in 1890, 4.7 in 1900, 4.5 in 1910, and 4.3 in 1920. The average population per family, which had been decreasing at the rate of two-tenths of a person per decade since 1890, as indicated by these figures, decreased three-tenths of a person, or half as much again, between 1930 and 1940; or, making the comparison directly with 1890, the average population per family in 1940 is less by 1.1 persons than it was 50 years ago. The decline in the average size of the family in the United States is due primarily to increased urbanization and the decline in the birth rate.

1940 CENSUS REPORTS

The 1940 count of total population is now (February, 1941) available either in printed form or in processed releases, for all states, counties, cities, towns, villages (incorporated), and other political subdivisions of the country, and the counts of housing units are likewise available for states, counties, and incorporated places of 2,500 or more. Data are available from the preliminary tabulation of the 5 per cent sample on the following subjects: employment status; sex, color, age, and farm-nonfarm residence. The simpler tabulations provide figures for states and large cities, and the more complex cross-tabulations for the United States as a whole or for large subdivisions. Complete tabulations for population and housing units classified in accordance with the more important characteristics (and available for small areas), will be made public, state by state, through the summer of 1941, with many series completed by early fall. The volume summarizing the population counts will be issued in the summer (1941), but other volumes of the final reports will probably not be forthcoming much before the end of the current year.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Colonization Society, 514-6 Colorado Bldg., Washington, D.C.

American Ethnological Society, American Museum of Natural History, New York City.

American Jewish Committee, 386 Fourth Ave., New York City.

Ancient Order of Hibernians in America, 1648 Westmont Ave., Pittsburgh, Pa.

Centro Vasco American Society, 48½ Cherry St., New York City.

English-Speaking Union of the U.S., 30 Rockefeller Plaza, New York City.

Federation De L'Alliance Française, 22 E. 60th St., New York City.

Federation of Polish Jews in America, 225 W. 34th St., New York City.

Hebrew Sheltering and Immigrant Aid Society of America, 425 Lafayette St., New York City.

Holland Society of N.Y., 90 West St., New York City.

Huguenot Society of America, 122 E. 58th St., New York City.

Hungarian Society of N.Y., 270 West 89th St., New York City.

Indian Rights Assn., Inc., 301 S. Seventeenth St., Philadelphia, Pa.

Japanese Assn., Inc., 1819 Broadway, New York City.

Jewish National Workers' Alliance of America, 251 Fourth Ave., New York City.

Jewish Welfare Board, 220 Fifth Ave., New York City.

Lake Mohonk Indian Conference, Lake Mohonk, N.Y.

Lithuanian Alliance of America, 307 W. 30th St., New York City.

National Assn. for Advancement of Colored People, 69 Fifth Ave., New York City.

National Council of Jewish Women, 1819 Broadway, New York City.

Naturalization Aid League, 175 E. Broadway, New York City.

Netherland-American Foundation Inc., 10 Rockefeller Plaza, New York City.

Ordine Figli D'Italia in America, 225 Lafayette St., New York City.

Polish National Alliance, 142 Grand Ave., Brooklyn, New York City.

Scripps Foundation for Research in Population Problems, Miami University, Oxford, O.

Sons of Italy, 377 Broadway, New York City.

Young Judaea, Inc., 111 Fifth Ave., New York City.

Young Men's Hebrew Assn., Lexington Ave. and 92nd St., New York City.

Young Women's Hebrew Association, 31 West 110th St., New York City.

Zionist Organization of America, 111 Fifth Ave., New York City.

DIVISION XV

SOCIAL PROBLEMS AND CONDITIONS

PUBLIC AND PRIVATE SOCIAL WORK

By Fred K. Hoehler

Director, American Public Welfare Association

THE DEFENSE CRISIS

Through the greater part of 1940, in welfare developments as in the national life, run the cable-like fibres of the exigencies and consequences of the national defense program. In the words of Paul V. McNutt, coordinator of defense and welfare activities: "Materials for defense are useless without adequate manpower, and adequate manpower can only be drawn from a strong, healthy people." To the continuing basic social needs like medical care, then, and to such long-standing problem areas as relief and migrant troubles, 1940 added not only an urgency arising out of the defense crisis but new problems consequent upon the program being developed to meet that crisis.

COORDINATION

Felt in private welfare as well as public, the impact of defense may well have had a unifying effect. Certainly, review of the year reveals evidence of recognition of the interlocking of the two fields. A more thoughtful interest than before seemed to prevail generally in the subject of better coordination not only of private services among themselves but also with public services. This intensification of interest was perhaps best indicated by the large number of social surveys conducted by both private and public agencies such as Community Chests and Councils, Public Administration Service, and the American Public Welfare Association.

Out of this general concern, two specific trends seemed to come. One was the renewed consideration given by local planning groups of ways and means of more adequately including public agency representatives in local planning machinery. The other was the better equipping of family welfare agencies for specialized services like legal, psychiatric, and protective services, so that they might act as supplementary facilities for public agencies and as additional resources for marginal families. Coincident with such developments was the spread of the realization that good private family welfare work is possible only so long as there is a solid foundation for public welfare services.

Use of research as a basis for planning and coordinating social services grew steadily. A questionnaire sent to 71 community chests and councils, for instance, revealed that, in addition to volunteers, graduate students, and other aides, at least 35 had special staff members assigned to statistical work or research.

The members of the National Citizen's Conference, sponsored by Community Chests and Councils, Inc., agreed in May upon the following points: (1) the purpose of research in chests and councils is the collection and interpretation of data that will be helpful in intelligent social planning and acting; (2) research as a basic function for decision should be founded on adequate and accurate facts; (3) satisfactory conduct of the research function requires trained and intelligent personnel; and (4) major research can not be carried on with full success by staff members alone but requires cooperation from the representatives of the various interests concerned with the problem.

PRIVATE SOCIAL WORK

In the private field, perhaps the most significant trend of the past year was the marked extension in many cities of the group hospitalization plan. Also of interest was the progress made, through careful study by group agencies, toward a clearer understanding of educational techniques as applied to individual members of participating groups. It is significant not only of the generosity of the American people but also of their awareness of the importance of the private social agency, that, in a year which brought so many appeals to every purse, the money raised for community chests exceeded that of the year before by about three per cent.

Repercussions of the war in Europe made themselves felt in the child welfare field when extensive surveys of facilities available to small refugees were made at the request of the American Committee for Refugee Children at the time that some 20,000 young Britons were expected. Failure of the migration to take place did not discontinue committee activities, and local agencies prepared to cooperate should the event take place later.

In 1940, as in 1939, an important feature of private social work was the emphasis on measures for prevention of dependency and delinquency. As successful leaders in commerce and industry have long recognized the value of frequent community studies to point out assets and liabilities which will affect the progress of business, so, too, has the intelligent leadership of private as well as public social work planned for constructive and preventive attack on the causes of dependency and delinquency. Prevention is not a haphazard, uncoordinated process. It requires facts and an understanding of the relationship of those facts to old or new programs. As such, it must be preceded and accompanied by careful planning.

Recognition of this principle was shown in 1940 by an increasing tendency to deal with problems before they became chronic. For such planning, the emergency in which the country now finds itself adds new reason—not only in order to meet the problems of mobilization but to look ahead to those attendant to the inevitable demobilization.

PUBLIC WELFARE AND DEFENSE

Many public welfare and quasi-public welfare agencies found themselves drawn actively into the defense effort. By fall the National Youth Administration was training 100,000 youths for work in producing military equipment. The United States Housing Authority had been enlisted in the defense housing program. The United States Employment Service had turned much of its effort to directing skilled labor to defense industry. The Civilian Conservation Corps had been authorized to provide "noncombatant" military training for enrollees, and enrollment regulations had been broadened so that the corps might become a service organization for defense and industrial rehabilitation instead of a relief agency. The Work Projects Administration had been freed, where projects important to defense were concerned, from the usual limitations on project-cost as well as from wage rates and hours of labor, and was cooperating in many ways. It had established a National Defense Industries Employment Register for certified persons having skills, or potential skills, for defense industries; was sharing in the $60,000,000 defense training plan by a program of skill-refreshment for selected workers; and was increasing the proportion of its funds devoted to projects of such strategic importance as improvement of highways vital to military operations, widening and strengthening of bridges, and construction of facilities for the army, navy, coast guard, and national guard.

In addition to the setting-up of these constructive programs, there was also considerable building in 1940 of so-called "fifth column" fences. Congress, for instance, prohibited the Work Projects Administration from employing aliens, Communists, or Bund members. Aliens over 14 were registered and fingerprinted. The Immigration and Naturalization Service was transferred from the Department of Labor to the Department of Justice. Passport and visa requirements for aliens entering the country were tightened. Registration was required of funds collected for relief in belligerent nations.

Attendant upon all this emergency activity were new problems that arose directly from it. To communities suddenly enlarged by defense industry, the importance of adequate facilities for welfare, health, recreation, education, and other services, was heightened. The Federal Government turned its energies to meeting some of these critical needs; the communities themselves had to deal with such magnified social problems as the mounting number of needy non-residents lured by hope of employment, and the probable increase of delinquency and prostitution.

National conscription of civilians for military training raised the question of the rights of draftees and their dependents. Attention was given to the fact that men drawn from private employment would lose the social security benefits they would otherwise earn. With respect to unemployment insurance, for example, the Social Security Board urged legislation "freezing" the rights of conscripts and guardsmen during the period of active military service. Of various measures, including provisions designed to preserve the social security status of such persons, the first bill enacted defined their status under the Railroad Retirement Act and authorized a system of life insurance for them. Legislative committees studied the problems of conscription and mobilization with a view to further definition of the rights of those inducted into the military service.

Social considerations entered into the provisions of the conscription act itself. For instance, the act permitted deferment from immediate service for those men whose absence for military training would be an unusual loss to the community. Included in this group were those with dependents, those in services essential to people (such as physicians and dentists), and those responsible for public functions like public health, education and public welfare. An old need was given especial urgency when the enlistment of men for military training reminded authorities that health is basic to national defense and that not only soldiers but the whole citizenry must be physically fit.

Toward the close of the year, to give unity to the welfare part of the whole effort, a defense-coordination post was created, which was charged with coordination of all health and welfare activities affecting the national defense. In this way, as well as by delegation to the Advisory Commission to the Council on National Defense of responsibility for the "welfare of the consumers of America," was official recognition given to the precept that human welfare is as important to national defense as arms manufacture.

OLD PROBLEMS

Meanwhile, troubles of longer standing than defense, though cast somewhat in the shade, continued to press for action. Although in some industries, such as emergency housing construction, defense production promptly reduced unemployment, the delay in defense spending because of time needed for plant expansion also delayed any substantial reduction in unemployment which might have been expected. This partial absorption of unemployed workers not on relief and of W.P.A. workers did not materially reduce the burden of general relief upon state and local governments. Moreover, it was not to be expected that the economic activity ensuing from defense would wipe out conditions which have necessitated programs of public care.

In Congress, old problems were studied by both special and continuing groups. In the Senate, the Byrnes Committee, created in 1937, continued its investigation of unemployment and relief, and a subcommittee of the Finance Committee conducted an "old age study" which was designed to cover the whole ground of old age security. In the House, a large, unofficial group chairmaned by Congressman Voorhis attempted to explore every aspect of the unemployment problem, and the official Tolan Committee held hearings all the way from New York City to San Francisco and from Chicago to Montgomery, Ala. on the troubles of migrants.

Outside of Congress, as well as within, the attention given to relief was indicative of the pressing nature of the problem. The National Resources Planning Board, the Brookings Institution, the Twentieth Century Fund, the Council of State Governments, and a number of state interim legislative committees or special commissions, all conducted studies either of relief or of unemployment, which is basic to its intelligent solution. This almost unprecedented concentration of attention was directed at reducing to some order the confused administration of relief, which, unlike the other assistance programs, suffers from lack of a sound and consistent Federal policy.

RELIEF TROUBLES

Lack of such a policy was paid for in 1940, as in other years, by haphazard financing, inadequacy, and great variance of policy among the states. About the only constructive step effectuated was in connection with the distribution of surplus commodities when it was announced, during the first part of the year, that the food stamp plan would be extended to about 4,000,000 needy persons in close to 150 cities. Under this plan the Federal Government makes available to qualified persons stamps good for the purchase of specified commodities from retail grocers. As the stamps are redeemed by the government, the plan is in effect a subsidy for distribution of surplus commodities to relief clients.

For the rest, the story is similar to that of 1939. Relief needs severely strained state and local financial resources, and sales taxes and borrowing were generally resorted to for meeting obligations. Financial responsibility was left completely to local governments in 13 states, while 32 state governments shared responsibility with localities, and three states financed relief exclusive of the localities. Many states found their taxing power limited by constitutional prohibitions on certain taxes, by statutory maxima on the property tax, and by the competition of lower taxes in other states. Moreover, the very thought of the unprecedented cost hindered, in many places, the granting of relief sufficient for even minimum subsistence standards. A typical example in the summer of 1940 is quoted from the Missouri Association for Social Welfare: "This summer Missouri's funds for relief will be exhausted, funds which were appropriated by the Missouri Legislature to last through December 1940. The money could not be stretched—even with the most parsimonious giving—to last through the year. At the last session of the Legislature, the State Social Security Commission asked for $12,000,000 for general relief for the biennium 1939-40, the Governor recommended $9,500,000 and the Legislature appropriated $6,500,000."

Furthermore, though general relief should be flexible both administratively and financially, since it must meet fluctuations in the residual portion of the needy population which is not cared for by work relief or the categorical programs, general relief agencies were not able adequately to change in response to varying needs, except in states where the legislatures literally appropriated blank checks. This comparative rigidity meant suffering and privation for many who should have been given adequate aid.

The seeming unpredictability of the Work Projects Administration was another factor contributing to confusion in relief administration; for unless men are discharged from W.P.A. in perfect step with economic recovery, most of them fall back upon relief. For example, 775,000 workers were dropped from the W.P.A. rolls in July and August, 1939, under the 18-month dismissal rule imposed by Congress. Investigators found that three months after the lay-off only 13 per cent of these workers had found jobs. The 87 per cent who were still without jobs had had to seek aid from general relief agencies.

Still another factor that created trouble was that most states, in order to obtain maximum use of the Federal funds offered for old age assistance, aid to the blind, and aid to dependent children, indulged in financial favoring of these categories. Oklahoma, for instance, spent, with Federal aid, 21 times as much for old age assistance as for general relief, Texas 13 times as much, and Colorado nearly six times as much.

COMPARISON OF PROGRAMS

An analysis of figures for a single month in 1940 serves even better to show the inequities between appropriations for relief and other programs, as well as between those for some of the other programs themselves. In June a total of 7,601,000 client cases received either assistance or earnings under the public assistance programs for the aged, blind, and dependent children, general relief, W.P.A., Federal construction projects in the Public Works Administration, the National Youth Administration, the Civilian Conservation Corps, and the Farm Security Administration (included only to the extent that it makes subsistence payments to farmers.) Although some families received assistance from more than one source, it is estimated that an unduplicated total of 5,700,000 households was assisted by the above programs and that a total of 16,070,000 persons in these households was helped.

The distribution of benefited individuals among the several programs enumerated above is indicated by the following analysis. Of each 100 persons receiving aid in the month mentioned, 27 were employed by the Work Projects Administration; 36 received some special type of public assistance under the social security program; 20 received general relief through local or state programs; four were employed on construction projects supported wholly or in part by Federal funds; four received student aid through the National Youth Administration; four were employed on National Youth Administration work projects; four were employed by the Civilian Conservation Corps; and one received subsistence payments from the Farm Security Administration.

During the same month, a total of $256,371,000 was distributed as assistance and earnings under these programs. An analysis of the manner in which the money was distributed shows that persons fared more poorly from general relief than from public assistance, and that the persons working full-time received a larger share than those simply receiving relief. The 27 per cent employed by W.P.A. received 39 per cent of the money; the 36 per cent receiving public assistance under the Social Security Act received 20 per cent; the 20 per cent receiving general relief received 13 per cent; the four per cent employed on federally supported construction projects received 18 per cent; the four per cent receiving National Youth Administration student aid received one per cent; the four per cent employed on National Youth Administration work projects received two per cent; the four per cent employed by the Civilian Conservation Corps received six per cent; and the one per cent receiving Farm Security Administration subsistence payments received less than one per cent.

This was approximately the same percentage division of funds among the welfare programs as in June, 1939 but the total expenditure was $48,000,000 less. A significant decrease in W.P.A. was the result of appropriation cuts and the "eighteen-month" provision by which workers on the W.P.A. rolls for 18 months or longer were dropped until recertified on the basis of proven need.

Indicative of the relative needs of states and their financial ability to pay for them is a comparison by states of the average grants given to recipients of old age assistance. In Arkansas, for instance, the average grant in June was $7.57, in Virginia $9.82, in Colorado $33.75, and in California $37.95—disparities which could be corrected by giving Federal aid on the basis of need and financial ability.

FEDERAL LEGISLATION

Although Congress passed few welfare measures that were not related to defense, there was a considerable number of bills introduced. These dealt with proposals to extend the coverage of the Social Security Act, increase of Federal participation in public assistance, help for migratory workers, improvement of services for educating handicapped children, extension of N.Y.A., changes in W.P.A., health security and health insurance, vocational rehabilitation of disabled adults, old age pensions, refugee children, and other matters. The National Health Bill outlining a nation-wide plan for subsidized medical care was put on the shelf because of the determined opposition of certain groups and the need for further study of the question. A bill less sweeping in scope, that would have provided 50 hospitals in needy areas, died in committee.

Outside of the W.P.A. appropriation act, about the only enactments of welfare importance were the Glass-Henning measure, which permits American ships to enter war zones and rescue refugee children, and the "Little Hatch Act"—(little brother to the 1939 measure limiting political activity of Federal employees) which limits political activity of state and municipal employees paid in whole or in part from Federal funds. Passage of the Ramspeck Bill, blanketing some 200,000 Federal positions under civil service, was of importance, too, because of its bearing upon the whole Federal service.

Many of the bills not acted upon in 1940 will, of course, be reintroduced in 1941. Of these, one of the most important is that of Senator Wagner (N.Y.) which would amend the Social Security Act. The suggested changes, as embodied in the 1940 bill, relate chiefly to old age and survivors' insurance, unemployment compensation, and old age assistance.

NEW ADMINISTRATIVE ACTIVITY

Lack of Congressional action in 1940 was perhaps well compensated for by the administrative activity in both Federal and state governments as a result of 1939 amendments to the Social Security Act. On Jan. 1, monthly benefits under the Federal old-age and survivors' insurance program became payable, and the amendment requiring states to establish and maintain personnel standards on a merit basis for staff workers in federally aided public welfare programs took effect.

By the original provisions of the Social Security Act, state departments administering federally aided public welfare programs were under merit plans. The new state regulations standardized the selection, tenure of office, and compensation of all the public employees working with aid to dependent children, aid to the blind, old age assistance, maternal and child health services, and unemployment compensation. Thus, sound career systems are being established for county personnel in these services, previously unaffected by merit regulations. Of the 3,053 counties in the United States, less than 200 previously had some civil service plan, although some had departmental plans for the appointment of welfare employees.

The amendment was put into effect slowly because of the time needed to establish the various features of state merit systems. For example, it was necessary to classify all positions according to the work performed, standardize salary schedules, outline qualifications of workers, prepare examinations, and provide for records, service ratings, promotions, and tenure. In addition, the states faced the question of the merit status of workers already employed. By July 1, however, in nearly all states the initial drafts of rules and regulations had been completed and the actual installation of merit systems begun.

STATE AND LOCAL DEVELOPMENTS

Other, non-Federal changes were brought about chiefly through state legislation. Nineteen state legislatures met during 1940, a "nonlegislative year," in either regular or special sessions. Both proposed bills and enacted laws approximated the trend-patterns of the year before.

In the field of relief, the welter of proposals of a financial, administrative, and other nature were clear symbols of confusion, with deficiency and emergency financing, borrowing, and changes in the cost-proportion to be borne locally and by the state.

In public assistance there were several important liberalizations. Illinois, Kentucky, Mississippi, Ohio, and Virginia, for instance, authorized larger monthly old age assistance grants, Illinois and Ohio extending their maxima to $40; Kentucky and Mississippi increasing theirs from $15 to $30; and Virginia eliminating a requirement that all income of the recipient be included in the $20 maximum. Ohio, in addition, raised her maximum grant for aid to the needy blind from $400 annually to $40 monthly. Actual amounts of these grants depend, of course, upon available funds. The State of Washington, however, provided by initiative petition for a minimum of $40 monthly to "senior citizens" over 65. Besides these important liberalizations in allowances, there was a trend toward easing of lien requirements for old age assistance, notably in California, Kentucky, Mississippi, and Nebraska.

Recent Social Security Act amendments brought state action in various programs. Kentucky, Mississippi, Ohio, Pennsylvania, Rhode Island, and Virginia all extended the eligibility age for aid to dependent children from 16 to 18 years for children attending school, and numerous legal provisions concerning merit plans also appeared. States that took steps to launch new programs under the Social Security Act were Mississippi, which made provision for aid to dependent children, and Kentucky, which passed both aid to dependent children and aid to the needy blind acts.

The 1940 trend in residence requirements for public assistance was one of the few that took an opposite tack from that of the previous year. The more recent laws, though not numerous enough to counteract the upward revisions of 1939, tended downwards. Mississippi, for instance, lowered her requirement for old age assistance to one year immediately preceding application, and Rhode Island not only reduced to one year her old age assistance requirement but also her aid to the blind and state unemployment relief requirements.

Another bright spot was the continued growth of interstate cooperation as reflected by such provisions as those made in Louisiana, New Jersey, Rhode Island, and Virginia concerning interstate agreements relative to dependent persons.

Some inaction in administration is not surprising in view of the numerous changes made in 1939. Of the states that made such changes, only Rhode Island seemed to feel a need for much further administrative legislation. To meet this, the legislature transferred the administration of the Bureau for the Blind from the Department of Education to the Department of Social Welfare; created within the Department of Social Welfare an advisory council to assist in promoting the interests of the blind; and reorganized the responsibilities of the welfare department's three assistant directors.

Other states making administrative alterations were Louisiana, Mississippi, and New Jersey. The former, as part of a general state-government reorganization, abolished the Department of Public Welfare, the Emergency Relief Administration, and the Drought Relief Committee, and created a new Department of Public Welfare and a Department of Institutions, to which were assigned, respectively, all administrative functions of the state relating to social welfare activities and state institutions, except institutions of learning. Mississippi, on the other hand, changed her county welfare boards to welfare departments and made a clear separation of administrative and advisory powers as pertaining to the executive officers and the boards respectively. New Jersey made a shift in administrative organization for relief by setting up a State Municipal Aid Administration to conduct a program under which all municipalities able to provide up to 30 per cent of their relief costs are free of state control.

In the field of child welfare, what legislation there was, except for that already mentioned in connection with public assistance, was heterogeneous. Mississippi established a state training school for delinquent colored youths and made changes in court-jurisdiction over certain minors; New York revived her temporary state commission to examine and recommend measures to improve facilities for deaf children; and Virginia provided for an investigation of child welfare by her Advisory Legislative Council.

CONCLUSION

A bird's-eye view of the year seems to indicate that although defense and aid to Britain will occupy the center of the national stage in 1941, certain welfare developments will at least be in the wings. Action on relief is long due. So, too, is some plan to deal with the plight of migratory workers. Unemployment will doubtless be the subject of further study. Likewise, the whole problem of old age security may possibly receive some sort of constructive treatment. In addition, welfare problems of a defense origin will certainly demand attention, defense housing and the social security status of those inducted into the military service being among the most pressing.

Whatever steps are taken, it is certain that the American governments, Federal, state, and local, will have to continue to formulate policy in the face of two opposing pressures: the urgency of the problems themselves and the resistance of the taxpaying business economy to levies seemingly too great to bear. In this stress, it is hoped by those actively concerned with planning for, and prevention of, welfare problems, that the nation will count not only the immediate "savings" of half-way treatment but also the ultimate cost in social breakdown and deterioration of human resource.

CRIME CONTROL

By James V. Bennett

Director, Bureau of Prisons, Department of Justice

GENERAL

The history of prisons since the establishment of the penitentiary system in Philadelphia in 1790 has been an attempt to find an answer to the meaning of imprisonment in its relation to crime and criminals and especially in its relation to the return of the criminal to society. During the year 1940, a number of significant studies were published seeking to evaluate the prison as an agency of punishment and reformation or to provide the materials for improving their methods.

STATE PRISONS AND REFORMATORIES

The first of these, published as Volume V of the Attorney General's Survey of Release Procedures, presents the outstanding facts about the major prisons and reformatories for men in America, state and Federal. Summarizing its conclusions the report presents the current situation in American prisons as follows: [1]

"Viewed only as a whole, the general situation as presented in the present survey would not be encouraging. There were approximately 137,000 male felons in American state prisons in 1936-37. Of these nearly 30,000 prisoners were living in road and farm camps most of which at best were only convenient concentration stockades for criminals. In most of the 390 prison road and farm camps scattered throughout the country, there was almost nothing resembling professional preparation for release in relation to criminal tendencies or habits of the convicts who were confined in them. The most that can be said for these camps as a rule is that the convicts in them were not idle and were living a healthy out-of-doors existence. In 85 penal institutions which housed the balance of the state prison population, over 40,000 prisoners were living in such crowded quarters as to injure both their moral and physical health. There was no work for 55,000 prisoners. In both camps and institutions, 100,000 prisoners were not enrolled in training courses of any kind.

"With few exceptions, state prisons are still administered by men selected primarily for political rather than penological qualifications and other prison officials in at least half of the state prisons have no security of office due to the political nature and control of their appointments. *** However, the introduction in a score of prisons of classification personnel whose function is to study the history of each individual case, to diagnose the difficulties and particularly the criminal tendencies of each, and to map out a program of training and rehabilitation for each prisoner, is having a significant effect on their personnel organization.

" *** The present survey has demonstrated what the man in the street already knows, viz: that prisons are decidedly limited in their power to reform, and that the community is already devising supplementary means of dealing with the criminal through probation and parole. *** The best that a prison can do is to examine and diagnose such an individual, carry him through the acute stage of his difficulties, and perhaps give him some training so that he may reshape his character, if possible, during a subsequent convalescent period in society. Men may gain a knowledge of new attitudes and new skills in prison, but until they have the opportunity to *apply* that knowledge under normal conditions in normal society, they cannot become rehabilitated in any real sense of the word. Thus protection, segregation, examination, diagnosis, classification, training become the functions of the prison; rehabilitation, the function of parole."

Thus, after 150 years, the extravagant claims of early enthusiasts and reformers are being subjected to objective analysis in the light of results, and institutionalization which was the answer to all social ills in the 19th century begins to assume more realistic proportions.

TRAINING SCHOOLS FOR JUVENILE DELINQUENTS

Supplementing the survey of prisons by the Attorney General, the Osborne Association of New York issued the first three volumes of its nationwide survey of state juvenile institutions covering 12 states—California, Iowa, Kansas, Kentucky, Minnesota, Missouri, Nebraska, North Dakota, Oregon, South Dakota, Tennessee, Washington. The conditions reported in some of these institutions are even worse than those prevailing in many state prisons and reformatories. Presenting an analysis of 13 training schools in Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota, the report states:[2]

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[1] Attorney General's Survey of Release Procedures, Vol. V, *Prisons*, Federal Prison Industries, Inc., Leavenworth, Kans., 1940; pp. 295-300, 304-5.

"Although our general conclusion is that these institutions do not have the facilities and personnel to do their job well, the individual reports bear out the present truth of the statement, made by the White House Conference on Child Health and Protection in 1930, that 'there are now in existence state institutions for delinquents which represent almost every stage in the development of principles and methods of treatment for children committed for institutional care.' For example, although partisan politics and patronage, with their immeasurably detrimental effects, were a negligible factor in four of the thirteen schools, they dominated the management of five and were influential in the administration of the remaining four. Similarly, in some institutions we found modern, fireproof housing but unfortunately, more than one-half of all the children in the training schools of this area were living in buildings where there is constant danger of death by fire. The regimented and sterile academic schools found in the majority of institutions had been replaced by a fine progressive school in one, and there were hopeful indications of increasing interest in modern educational principles and methods in others. Medical work varied widely in the amount and quality of service but none of the schools was staffed and equipped to meet the minimum requirements of preventive and corrective work and none was adequately served in the important fields of psychiatry, psychology, and social work. Constructive, intelligent discipline in some schools made a sharp contrast with the repressive, wholly negative discipline found in others, and it is a shocking fact that in 1937, in institutions for juveniles, we found such punishments as whipping, wearing handcuffs, being shackled to the bed at night, working in shackles and leg chains, cold tubbings, confinement in strait-jackets, and long hours of standing rigidly at attention."

The causes of this situation are given as "political interference in management, niggardly appropriations, and official neglect ** and primarily ** an apathetic public which has been ignorant of what is going on in institutions and has therefore tolerated inferior standards in the care of state wards."[3]

The same general conclusions were expressed in the report of surveys in Kentucky and Tennessee.[4] Of the Pacific Coast states—California, Oregon, and Washington—the report states: "The seven institutions of this area considered as a group with two notable exceptions have failed to fulfill their requirements as authorized by law or to achieve acceptable professional and humane standards."[5]

THE COUNTY JAIL

Local jails in the United States continue to represent the all-time low in institutional administration in the field of correction. In 1940, of approximately 3,200 municipal, county and local jails, 2,287 were rated by the Federal Bureau of Prisons as unfit, unsafe, insanitary, or otherwise lacking in proper facilities for the care of prisoners, 333 were approved for emergency or restricted use, and only 497 were approved for the use of Federal prisoners.

Summarizing the evils of the jail, Harry Elmer Barnes, historian, sociologist, and criminologist, presents ("The Kindergarten of Crime," *Jail Association Journal,* Jan.-Feb. 1940) five outstanding difficulties: "1. Promiscuity, the lack of adequate segregation of types, which is especially demoralizing to the younger offenders; 2. Inefficiency due to the ignorance of the sheriff, jail administrators, and the motives which account for the interest of the sheriff in his office; 3. Archaic and expensive nature of the county unit for the jail system; 4. Graft and the unnecessary expense in carrying out the sheriff's work, due to the fee system; and 5. Suffering and ill health (of) the victims of ** this system."

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[2] Osborne Association, *Handbook of American Institutions for Delinquent Juveniles*, Vol. I, New York, 1938; pp. 1–2.

[3] Ibid., p. 25.

[4] Ibid., Vol. II, 1940, p. 40.

[5] Ibid., Vol. III, 1940, p. 46.

SERVICE TO THE STATES

Due to the failure of Congress to appropriate any funds to continue its work, one of the most hopeful attempts to do something about conditions in state and local penal institutions went out of existence in 1940. This was the Federal Prison Industries Reorganization Administration. Organized in 1935 to help state prisons over the difficulties of adjusting to Federal legislation restricting the sale of prison products in the open market during the past five years, this organization made special studies of prison administration in 25 states. Originally intending to deal only with problems affecting prison industries, the P. I. R. A. soon found that the question of constructive employment for prisoners involved also prison education, medical care, recreation, classification and case records, housing, and even probation, parole, and personnel selection and training. In many of their studies, all of these subjects affecting offenders convicted of crime were dealt with, and in a number of states substantial progress was made in developing new and better facilities for meeting them. The P. I. R. A. closed its offices Sept. 30, 1940.

This activity has had a tremendous influence in changing the character of prison administration in America. Prisons whose programs were chiefly custodial, punitive, and industrial are turning to individual case-work, medical and mental care, education, vocational training, recreation, family welfare work, and group activities to find ways of adjusting criminals to normal social standards of living. One indication of the change which is taking place in modern concepts of penology is the fact that, out of 7,000 new beds provided for inmates in Federal penal and correctional institutions, less than 2,000 were in maximum security cells. Case-work, not clubs, is the new keynote in present-day prison administration.

ANNUAL PRISON CONGRESS

The Seventieth Annual Prison Congress held in Cincinnati in October, 1940, disclosed increasing emphasis on the professional side of prison work. Reports of the Committees on Education, Prison Labor, and Classification and Case-work each presented materials for publication as a result of research in these fields. A unique contribution to the Congress was a special issue of the inmate publication, *The Atlantian,* from the U. S. Penitentiary, Atlanta, Ga., presenting a symposium of views on prison problems by 15 or 20 editors of inmate magazines from as many state and Federal prisons.

The Congress adopted resolutions dealing with the consideration of ex-prisoners for military service under the Selective Service Act and called for an amendment to the law of 1877 which prohibits the enlistment of felons in the military service of the country. It noted the extension of prison officer training courses in Illinois, Michigan, New York, Pennsylvania, and Wisconsin, as well as in the Federal Bureau of Prisons, and requested a report on "a practical system of selecting prison personnel." It called for further information on state-use and maintenance industries in prison and related classes in vocational training. It urged renewed efforts to find jobs for discharged prisoners. It recommended the discontinuance or modification of "certain commercial radio programs devoted ostensibly to crime prevention" but which "have in reality emphasized the lurid details and specific techniques of crime." It noted with approval the efforts of the American Law Institute and other organizations "to devise more effective methods of dealing with offenders above the juvenile court age but not yet mature adults," generally referred to as the Youth Correction Authority plan. It commended the action of the Federal Judicial Council for its approval of the indeterminate plan of sentence in criminal cases. It recognized the importance of extending classification and case-work service to institutions for short-term offenders. Such were some of the prison problems current in 1940 which American prison officials found of sufficient importance to act upon.

PROBATION

The transfer of the Federal Probation Service on July 1, 1940 from the Bureau of Prisons to the recently created Administrative Office of U. S. Courts, will place nearly 30,000 Federal offenders completely under the supervision of the courts. This Service which has been under the general direction of a supervisor of probation attached to the Bureau of Prisons for ten years has developed from a system with probation officers in only eight Federal courts to one with 233 officers who serve every judicial district with the exception of Delaware and Utah. The number of Federal offenders on probation on July 1, 1930 was 4,281, and by June 30, 1940 the number had grown to 29,221. On Dec. 13, 1940, Federal probationers totaled 29,745 as compared with 28,495 for the same date in 1939.

Thirty-seven states, the Federal Government, and the District of Columbia have adopted statutes providing for adult probation. Twelve states provide for suspension of sentence only. These include Alabama, Florida, Louisiana, Mississippi, Nevada, New Mexico, Oklahoma, South Carolina, South Dakota, Texas, Wyoming. In Nevada and Oklahoma, even suspension of sentence is distinctly limited.

PAROLE

An analysis of the development of parole under the Federal Parole Board for the past ten years shows an increasing tendency to limit parole only to a comparatively small number of cases. Less than 5 per cent of the average number of those convicted of Federal offenses and under supervision in 1940 were on parole. Of a total of 58,576 Federal offenders in that year, 28,501 were on probation, 24,709 were in prison, 2,878 were under conditional release after serving their entire sentences less good time, and 2,488 were on parole. Only 34.2 per cent of those applying in 1940 were granted parole, and these constituted only 21.2 per cent of those released. The results of this policy are shown in the small number of violators over the ten-year period 1931-1940 when only one parolee in 15 violated his parole. If these figures are compared with those for Federal probationers, where the ratio is one violator to every 11 probationers, it is evident that the Federal Parole Board is even more conservative than Federal judges in their choice of prisoners who may be trusted in the community on their honor.

All but two states—Mississippi and Virginia—have provisions for parole, but in less than ten states is there any adequate provision for supervision on parole. This explains the criticism frequently leveled at parole and parolees who continue their antisocial actions. Except in those states having an adequate system of supervision, it would be more accurate to describe the release procedure employed as that of conditional release instead of parole.

THE WAR AND PRISONS

The war has brought several problems affecting prisons and prisoners to the fore. It prevented the assembling of the International Prison Congress in Rome in 1940. It has raised anew the question of permitting certain classes of ex-prisoners to serve in the military forces after careful investigation of each individual case. And it has begun to provide a new class of inmates, peculiar to war times—the conscientious objector and the draft evader.

SIGNIFICANT STUDIES IN PENOLOGY

A number of significant studies in penology in addition to those already mentioned were completed and published during 1940. *Prison Administration—An Educational Process* is the third of a series of studies in prison education published by members of the Division of Education of the Department of Correction of New York State. The others in this series include *Social and Economic Studies in Correctional Institutions* and *The Training of Prison Guards in New York State,* published in 1939 and 1938 respectively (Columbia University Press). *The Prison Community* by Donald Clemmons (Christopher Publishing House, Boston) presents a sociological study of a typical prison in a midwest state. *A Report on the Development of Penological Treatment at Norfolk Prison Colony in Massachusetts* by Commons, Yahkub, and Powers (Stanford University Press) describes some of the experiments in new methods of prison administration carried on at that institution from 1927 to 1934. Two outstanding investigations of interest include that of prison administration in California and of paroles and pardons in Massachusetts.

LEGISLATION

The most important legislative act affecting prisons passed in 1940 was the law prohibiting the interstate shipment of products made in prison except for Government use which was passed by Congress to become effective in 1941. Together with the Hawes-Cooper Act of 1929 which became effective in 1934 and the Ashurst-Sumners Act of 1935, all of which put restrictions on the interstate shipment of prison products, the Act of 1940 put the final touches on a campaign against the sale of prison products on the open market which has been carried on since 1804. Most states and the Federal Government now confine the sale of prison products to government agencies.

BREAK AT ARKANSAS STATE PRISON FARM

Perhaps the most spectacular event of the year in the state prison field was the break made by 36 prisoners under the leadership of two armed inmate guards at the Arkansas State Prison Farm. At this farm the only guards used are armed inmates, a system used in only three states (Arkansas, Louisiana, and Mississippi) and generally condemned by prison administrators as unsafe. For a week or ten days this group of escaped prisoners terrorized the countryside in Arkansas and neighboring states until most of them were rounded up by posses of officials and citizens.

HOUSING

By Stewart McDonald

Administrator, Federal Housing Administration

GENERAL

The year 1940 was notable in many ways for the American home owner, for the building industry, and for the Federal Housing Administration. The home owner was able to buy or build a house measuring up to high construction standards, located in a stable and protected neighborhood, at lower average prices and with the lowest financing costs ever available in this country. The building industry established new records for residential construction since 1928, and the FHA established new all-time records in volume of business transacted and in the number of families directly benefited by its program.

Some of the landmarks of 1940 from the FHA's point of view follow. With a new record for number and amount of loans under both Title I and Title II of the National Housing Act, the FHA became entirely self-supporting. President Roosevelt added $1,000,000,000 to the FHA's mortgage insurance authorization, bringing the total amount of Title II insurance which may be outstanding at one time to $4,000,000,000. Livable, attractive and soundly constructed houses in acceptable neighborhoods were built in all parts of the country under the FHA program and sold at prices ranging as low as $1,575—within the reach of families with incomes of as little as $1,000 a year. Lower average mortgage amounts and monthly payments on FHA-insured mortgages indicated a lower average cost for new homes, while construction standards were maintained or raised. Markets for FHA-insured mortgages were widened, making mortgage money more readily available to families wanting to own their own homes. Progress was made toward more uniform mortgage and foreclosure laws, and more equitable building codes and zoning laws.

DEFENSE COOPERATION

Steps were taken for close cooperation with the National Defense Advisory Commission, particularly in regard to forestalling housing shortages in industrial areas, and FHA regulations were adjusted to comply both with the letter and the spirit of the Soldiers' and Sailors' Relief Act of 1940. Warning was issued against any unjustifiable price increases in building materials and building operations connected with residential construction.

LOAN INSURANCE

During 1940, the total amount of loan insurance written by the Federal Housing Administration surpassed all previous years, totaling $1,025,000,000 as compared with $953,920,128 in 1939. Under Section 203 of Title II of the National Housing Act, the FHA issued insurance last year on 168,000 small home mortgages aggregating $736,000,000. Under Title I, a total of 658,000 loans amounting to $276,300,000 was reported for insurance by private financial institutions. About 90 per cent of these loans were for repairs, improvements or construction of homes. Fifty-eight mortgages amounting to $12,481,000 on rental and group housing projects, insured under Section 207 and the repealed Section 210 of Title II, became premium-paying during 1940. These projects provided 4,300 dwelling units.

All in all, more than 758,000 families utilized the FHA program during 1940 to build, purchase or improve their homes, as compared with 680,000 families in 1939. The FHA's income from appraisal fees, insurance premiums and other sources totaled approximately $21,270,000 during 1940. Expenses totaled about $13,400,000, leaving $7,870,000 to be added to the insurance funds and reserves.

HOME MORTGAGE INSURANCE

The principal FHA activity continues to be the insurance of small home mortgages under Section 203 of the National Housing Act, covering single-family homes almost exclusively. During the year, 283,000 home mortgages totaling $1,272,000,000 were selected for appraisal; 202,000 totaling $876,400,000 were accepted for insurance; and 168,000 in the amount of $736,500,000 were insured (became premium-paying). This compares with the 1939 record of 247,502 mortgages for $1,123,792,380 selected; 170,112 for $737,153,887 accepted; and 153,747 for $669,416,154 insured. Gross business under Section 203 from 1935 through 1940 amounted to $4,804,000,000.

Under present provisions of Section 203, on and after July 1, 1941, no mortgages shall be insured under Title II except mortgages that cover property which is approved for mortgage insurance prior to the completion of the construction of the property, or which has been previously covered by a mortgage insured by the FHA.

Under the same section, it was provided that the aggregate amount of the principal obligations of all mortgages insured under Title II and outstanding at any one time should not exceed $3,000,000,000, except that with the approval of the President such aggregate amount might be increased to not exceed $4,000,000,000. When FHA insurance and commitments approached the limit of $3,000,000,000 in November, President Roosevelt authorized the additional $1,000,000,000.

By this action, the President cleared the path for further large-scale expansion in the production of soundly built, soundly financed, and reasonably priced small homes. Largely because of the long-term stimulus given to home ownership by the FHA-insured mortgage program, construction of single-family dwellings last year was in the largest volume since 1928. The additional billion-dollar insurance authorization made this sound home-financing program available to roughly 250,000 additional families. Thus it was of utmost importance to builders, the building materials industry, building trades workers, and the more than 8,000 private financial institutions which have found a sound outlet for their investment funds in FHA-insured mortgages.

LOWER PRICE TRENDS

New home construction financed in 1940 under the FHA program carried forward the steady trend toward more and lower-cost small homes. Proof that soundly constructed new houses are being produced for American home owners at the lowest cost in recent history is afforded by the continued decline in the average amount of mortgage loan covering new homes constructed under the FHA plan.

New-home mortgages accepted for insurance by the FHA averaged $4,824 in 1935, $4,711 in 1936, $4,638 in 1937, $4,601 in 1938, $4,511 in 1939, and $4,417 for the first ten months of 1940. In the last two years, these mortgages represented a higher proportion of valuation than previously, and some 20,000 new small homes were constructed during the years 1939 and 1940 with loans of not more than $2,500 insured under Title I.

The unprecedented reduction in monthly costs of home ownership made possible by the FHA program has encouraged the building industry to produce sound homes in low-priced classifications never before considered a profitable market. As a result, the benefits of new home ownership have been steadily extended to ever broader income groups.

Families of modest income who hitherto could afford only to rent used homes are now able to buy their own new homes. More than half of the new homes financed by FHA-insured loans are being purchased by families with annual incomes ranging from $1,000 to $2,500.

Another encouraging indication of the trend is the fact that about one-third of the new and rehabilitated subdivisions planned to be eligible for FHA mortgage insurance last year were designed for homes costing under $4,000, and some for homes as low as $1,575, complete with lot.

It is also encouraging to note that more than half of the new homes of all types being built today are in subdivisions or other areas eligible for FHA home mortgage insurance. This means that these homes are built in areas which are planned to be lasting neighborhoods in all essential facilities and conveniences, usually with parks and playgrounds as well.

TITLE I LOANS IN 1940

A record volume of 658,000 loans amounting to $276,300,000 was reported for insurance last year under Title I of the National Housing Act for property improvement, bringing the grand total from July 1934 through December, 1940 to over 3,000,000 loans amounting to $1,242,900,000—all advanced by private lending institutions. This compares with 513,091 loans totaling $233,067,349 reported in 1939, with the previous record number of 635,747 reported in 1935 and the previous record amount of $246,149,913 reported in 1936. In 1936, however, FHA insurance was free, purchase of machinery and equipment were eligible for loans, and loans could be for as much as $50,000 on commercial properties and $10,000 on homes. In 1940, the FHA insurance premium was three-fourths of one per cent on modernization loans and one-half of one per cent on new-home loans; eligibility was limited strictly to property improvement, and the maximum loan amount was $2,500.

Modernization loan insurance, originally intended as an emergency provision, was suspended entirely from April 1937 through January 1938, and, under present provisions of Title I, expires on June 30, 1941.

Of the loans reported for Title I insurance since the June 1939 amendment, about 75 per cent of the number and 68 per cent of the amount were for improvement of single-family houses; 14 per cent of the number and 17 per cent of the amount were for two-or-more-family dwellings; 4 per cent of the number and 7 per cent of the amount were for commercial and industrial properties; 5 per cent of the number and 4 per cent of the amount were for farm structures; 3 per cent of the number and 4 per cent of the amount were for other types of property improvements.

Ratios of the type of improvement for which the major portion of the loan was to be used follow. New construction, 3.5 per cent of the number and 11.9 per cent of the amount; additions and alterations, 13.4 and 18.1 per cent; exterior painting, 18.1 per cent in both number and amount; interior finish, 6.4 and 6.2 per cent; roofing, 15 and 8.3 per cent; plumbing, 8.8 and 8.1 per cent; heating, 26.2 and 22.1 per cent; miscellaneous, 8.6 and 7.2 per cent.

Credit for the year's modernization record goes naturally to the property owners of America, who have realized the dollars-and-cents value of keeping their properties in good condition. With the cooperation of the building industry, lending institutions and the FHA, the annual check-up and modernization of properties has become an American habit.

RENTAL AND GROUP HOUSING

Group and rental housing activities under the FHA program during the year were restricted by changes made in Section 207 of Title II and the repeal of Section 210 in the 1939 National Housing Act amendments. Under these two sections, 48 mortgages amounting to $12,481,000 on rental and group housing projects providing 3,426 dwelling units became premium-paying in 1940, compared with 131 mortgages for $51,340,625 providing 13,342 dwelling units which became premium-paying in 1939. At the close of 1940, premium-paying rental and group housing mortgages numbered 317 and amounted to $126,952,675, and firm commitments were outstanding to insure 45 other mortgages amounting to $14,081,500. The number of dwelling units provided by the 362 projects totaled around 40,000.

FUNDS AND FORECLOSURES

Under the National Housing Act, the FHA established and operates the Mutual Mortgage Insurance Fund for home mortgages, and the Housing Insurance Fund for rental or group housing mortgages.

As of Sept. 30, 1940 assets of the Mutual Mortgage Insurance Fund totaled $35,725,663; included in this amount was $3,840,909 in mortgage notes taken on sale of foreclosed properties, and $3,644,126 in real property acquired under the terms of insurance. Against these assets, liabilities totaling $6,667,478 were outstanding; included among them were $5,476,155 of MMIF debentures payable, $112,900 of debentures authorized for issue, and $805,764 of claims for debentures. The FHA issues these interest-bearing debentures to mortgagees for properties which the latter acquire through foreclosure of FHA-insured mortgages.

As of the same date, 2,010 of the 582,321 premium-paying home mortgages on the FHA books had been foreclosed and the properties turned over to the Administrator. Of the properties acquired, 1,289 had been sold, with a net charge against the Fund of $763,836. The remaining 721 properties were being held awaiting sale.

Assets of the Housing Insurance Fund as of Sept. 30, 1940 totaled $8,644,725, of which $4,683 was in mortgage notes receivable, $6,368,569 in real property and the balance in other assets. Against these assets were liabilities totaling $6,444,375, which included HIF debentures payable of $3,673,150 and claims for debentures of $2,700,600. As of the same date five out of the total 315 projects had been acquired by the FHA as the result of foreclosures. Current income of the FHA is averaging around $1,900,000 a month, of which $1,500,000 is from Title II and $400,000 from Title I.

WIDENING MARKETS FOR INSURED LOANS

Markets for FHA-insured home mortgages continued to widen in 1940, as has been the case each year since establishment of the FHA. At the close of the year around 7,800 lending institutions had originated the $3,000,000,000 of mortgages accepted for insurance, while around 8,300 institutions held around $2,500,000,000 of premium-paying mortgages in their portfolios. At the beginning of 1940, there were 7,391 originating institutions and 7,846 holding institutions.

Among the different types of institutions, national banks have originated around 27.7 per cent of all mortgages accepted and hold in their portfolios around 28.4 per cent of all premium-paying mortgages. The respective ratios of other types are: state banks and trust companies, 23.7 per cent of mortgages accepted and 19.8 per cent of mortgages held; mortgage companies, 19.0 and 1.9 per cent respectively; insurance companies, 9.8 and 21.5 per cent; savings and loan associations, 11.5 and 9.7 per cent; savings banks, 3.3 and 5.8 per cent; Federal agencies, 0.002 and 8.5 per cent; all others, 5 and 4.4 per cent.

Mortgage companies originate the great bulk of their mortgages for other institutions, especially insurance companies; thus mortgage companies are the largest sellers and insurance companies the largest buyers of insured mortgages, while other types of institutions hold the bulk of the mortgages originated by them.

SLUM CLEARANCE AND LOW-RENT PUBLIC HOUSING

By Nathan Straus

Administrator, U.S. Housing Authority, Federal Works Agency

VINDICATION OF DECENTRALIZATION

The third year of the nation's decentralized slum clearance and low-rent public housing program came to a close on Nov. 1, 1940. By now there has been ample demonstration of the wisdom of the new step taken in 1937 when the program of building by the Federal Government was set aside in favor of a program conducted by Local Housing Authorities with the financial aid and technical assistance of the United States Housing Authority.

At present, 38 states, District of Columbia, Puerto Rico, and Hawaii have legislation under which Local Housing Authorities may be established. These laws have been tested and upheld by the highest courts in 26 states. Contrasted with 46 Local Housing Authorities in 1937, most of which through no fault of their own were inactive, inexperienced and ill-staffed, there are now 507 Local Housing Authorities representing communities of all sizes in all parts of the country. The local organs of government, in cities, towns, and rural areas, are responsible for initiating, planning, building, and operating slum clearance and low-rent public housing projects.

By Nov. 1, 1940, there were 483 low-rent public housing projects under loan contract in 198 urban and rural communities. These loan contracts amounted to an aggregate of $675,097,000. By Nov. 1, under their terms, 109,233 family dwelling units were under construction or completed, 27,437 low income families had moved from the slums into comfortable new homes, and thousands of other families were being rehoused month by month.

Under local direction, low rents, low costs, and the elimination of slums are being accomplished. Under local planning and inspiration, projects are being developed which serve no narrow purpose, but which are enlarging the cultural horizons of the entire community in terms of civic planning, rehabilitation, economic restoration, and social improvement. As a part of the projects, recreation areas, wading pools, and other play facilities are enabling children previously handicapped by the slums to lead wholesome, healthful lives. Open areas and social rooms, set aside for adult recreational and educational activities, are enlarging the opportunities for better citizenship. Better home conditions are being made the sure foundation for a better and stronger democracy in action.

ROLE IN DEFENSE PROGRAM

The most pointed illustration of the flexibility and adaptability of the USHA-local authority machinery is afforded by its prompt response to defense needs. The authority for utilizing the nation-wide public housing framework for the provision of urgently needed defense housing was provided by an amendment to the United States Housing Act, approved June 28, 1940. This amendment, without providing additional funds, relaxed some of the strictures of the original law to meet the special problems of defense workers and defense industries. In addition, the Lanham Act, approved Oct. 14, 1940, authorized the appropriation of $150,000,000 for defense housing purposes, to be utilized through the Federal Works Agency, of which the United States Housing Authority is a part.

Included among USHA projects there are already 21 designated for defense workers, comprising 6,320 family units. These are being speeded to completion to house the families of people employed in essential defense industries, as well as the families of enlisted Army and Navy personnel. The USHA loans for these purposes amount to $24,144,000. Two of these defense housing projects in Pensacola, Fla., and Montgomery, Ala., are already open for occupancy. One of them was opened just 86 days after construction started, and the other within 95 days after the first shovelful of earth was turned.

The vital contribution of these defense housing projects to the nation at large can be measured only against the woeful unpreparedness to meet expanding housing needs in the defense period commencing in 1916, and the woeful results produced by that lack of preparedness. Industrial retardment and stoppage, hastily constructed shacks which became the slums of the next decade, and manifest inability in many areas to meet the problem at all—all such obvious evils a quarter of a century ago—are being substantially avoided today because adequate machinery has been provided in advance and is being utilized. This new approach, combining the immediate development of defense housing projects with the utilization of those projects for the permanent slum clearance and low-rent housing program once the emergency is over, affords a dramatic illustration of one method whereby the problem of defense can be reconciled with attention to, rather than neglect of, the long term social and economic problems of peaceful domestic economy.

LOW RENTS

The United States Housing Act sets up certain basic requirements as to tenant eligibility. Only families in the lowest income group may be admitted to USHA-aided homes. Moreover, no family is eligible for admission to a project built with USHA assistance if its net income is more than five times the cost of rent plus utilities in the proposed new dwelling, except in the case of families with three or more children, where the income may amount to as much as six times the rent plus utilities.

In the USHA projects with rents approved by Nov. 1, 1940, the average rent per family per month was only $12.95. A small additional charge is made for such utilities as gas, electricity, and water where furnished. The anticipated average family income in these projects is about $800 a year, or $15 a week.

In projects in the South, rents average about $10 per month per family. In some of the projects that have already been opened, families with incomes as low as $300 and $400 a year are being served. In the North, rents in USHA projects average less than $15 a month.

In no project under the USHA program are the rents higher than those paid by the tenants for the substandard lodgings in which they formerly lived. In some projects, where due to shortage or exploitive conditions the rents paid in slums were excessively high, the rents paid for decent new homes are lower than those charged for substandard housing in the same localities.

LOW COSTS

The costs of construction under the USHA program have been consistently lowered by the Local Authorities. On the 307 projects under construction or completed by the end of the USHA's third year, the average net construction cost per dwelling unit was only $2,732. This figure is about 25 per cent lower than the net construction cost of housing undertaken by private enterprise in the same communities, despite the fact that public housing projects, unlike much private construction, are built to last for several generations, by labor paid prevailing wages.

The average dwelling facilities cost per dwelling under the USHA program as of the same date was $3,640 in cities of over 500,000 inhabitants (where the applicable statutory maximum is $5,000) and $3,216 in cities of 500,000 and less (where the applicable statutory maximum is $4,000).

This cost record is a significant reflection of the Local Authorities' concern with economy. Cautious land-acquisition plans, the avoidance of unnecessary frills and gadgets in the new homes, competitive bidding practices and large-scale purchases, intelligent planning of labor on the sites, considerable savings in the cost of insurance, and substantial economies effected through short-term private financing, have all contributed toward low costs.

EMPLOYMENT

One of the most important aspects of the public housing program is the amount of employment it is creating, directly and indirectly. In communities all over the country men who would otherwise have been unemployed have had jobs, at prevailing wages and under good conditions, in the construction of low-rent public housing. The present program will provide a total of about 115,000 "man years" of direct employment for carpenters, plasterers, plumbers, bricklayers, and other building trades workers, all of whom are engaged by the contractors to whom bids are let by the Local Authorities.

An additional 185,000 "man years" of indirect employment away from project sites is being provided, in mines, mills, and factories in connection with the production of building materials, and in administrative, architectural, and engineering work. It is estimated that a total of $280,000,000 is being spent under the present program for lumber, steel, brick, cement, glass, hardware, and other building materials.

PUBLIC HOUSING AS A STIMULUS TO PRIVATE ENTERPRISE

Public housing operates in large part through the channels of private enterprise. Private interests are lending money to help finance public housing projects. Private enterprise is being drawn upon for architects, engineers, research, and office workers employed on Local Authority staffs or on a fee basis. Land is bought from private owners. Local Authorities use private contractors for project construction. Materials are privately manufactured.

Moreover, the construction and improvement of private property almost invariably occur in the neighborhood of public housing projects. Equally significant is the fact that techniques of large-scale planning, construction, and management proved practical by public housing are increasingly being utilized in large-scale private housing.

REDUCTION IN PUBLIC COSTS

For three years the USHA and Local Authorities have worked ceaselessly to cut down that item which constitutes the only cost of the program to the Government, namely, the annual contributions or subsidies used to bring rents within the means of families of very low income.

Subsidies have been progressively lowered by economies in construction costs, in operating costs, and in the purchase of insurance and utilities, as well as by generally prudent planning and administration. New financing methods have been devised to obtain local funds at lower interest rates. The average annual contribution or subsidy per family rehoused has been lowered by serving a more representative cross-section of the lowest income group, instead of restricting the program solely to those at the very bottom of the lowest income group.

It may be stated very conservatively at this time that the average net cost to the Government per family rehoused is less than $75 per year, a significantly low figure in terms of comparative expenditures for other purposes and in terms of value received.

THE HOUSING NEED

An estimated 13,279,000 non-farm homes will be needed in this country by 1950, according to Dr. Edith Elmer Wood in her *Introduction to Housing* (Washington, 1940). Of this number, about half represents additional housing needed due to increased population, and about half represents replacement needs. An even greater percentage of American farm families are ill-housed. It is authoritatively estimated that 60 percent of them, or about 4,000,000 families, have inadequate housing accommodations.

Detailed testimony concerning private residential construction in relation to the acute housing shortage in the United States was presented before the Temporary National Economic Committee in Washington during the year in the course of its hearings on the construction industry. Fact upon fact proved beyond cavil that while the whole job is too big to be attempted through public action alone, it is also too big and varied to be accomplished by private enterprise alone. Testimony presented during the latter part of 1940 to the newly appointed Defense Housing Coordinator in Washington revealed acute need in scores of localities for housing to accommodate the families of workers in important defense industries, and to accommodate the families of enlisted men or civilian employees around Army and Navy posts. The public housing program is an indispensable segment of the circle in a well-rounded housing program.

In the face of such widespread peace-time and emergency housing needs, the existence of a readily adaptable public housing framework throughout the nation is reassuring. Under the USHA-Local Housing Authority partnership, thousands of low-income families are being rehoused month by month in comfortable, durable homes. The rents achieved set an all-time low record for decent new housing, without sacrifice of construction standards. Signal construction economies have been effected, largely by virtue of large-scale building. And where emergency housing is being provided, there is assurance that such accommodations will be available to low-income families from the slums as soon as, and long after, the defense emergency has passed. In short, during the year 1940, steps were taken to permit the solution of the emergency housing problem without sacrificing the fundamental character of the public housing program itself—the rehousing of families from the slums who can not otherwise obtain decent housing, in homes befitting the citizens of a wealthy, democratic nation.

PERIODICAL PUBLICATIONS

American Childhood
74 Park Ave., Springfield, Mass.
American Journal of Public Health and the Nation's Health
1790 Broadway, New York City.
American Journal of Psychiatry
9 Rockefeller Plaza, New York City.
Boy's Life
Boy Scouts of America, 2 Park Ave., New York City.
Journal of Home Economics
Mills Bldg., Washington, D.C.
Journal of Social Hygiene
1790 Broadway, New York City.
Social Research
66 West 12th Street, New York City.
Social Studies
1021 Filbert Street, Philadelphia.
Social Work Today
112 East 19th Street, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

JUSTICE AND MAINTENANCE OF ORDER

American Bar Assn., 1140 N. Dearborn St., Chicago, Ill.
American Civil Liberties Union, 31 Union Sq., New York City.
American Council of Learned Societies, 597 Fifth Ave., New York City.
American Institute of Criminal Law and Criminology, 357 E. Chicago Ave., Chicago, Ill.
American Law Institute, 3400 Chestnut St., Philadelphia, Pa.
American Prison Assn. of N.Y., 135 E. 15th St., New York City.
National Committee on Prisons and Prison Labor, 1860 Broadway, New York City.
National Crime Commission, 73 Tremont St., Boston, Mass.
National Police Conference, 240 Centre St., New York City.
National Probation Assn., 50 W. 50th St., New York City.
National Society of Penal Information Inc., 114 E. 30th St., New York City.
Society for the Prevention of Crime, 150 Broadway, New York City.
Women's Prison Assn., 110 Second Ave., New York City.

SOCIAL ORGANIZATIONS

American Academy of Political and Social Science, 3457 Walnut St., Philadelphia, Pa.
American Political Science Association, 305 Harris Hall, Northwestern University, Evanston, Ill.
American Red Cross, 17th between D and E Sts., N.W., Washington, D.C.
American Seamen's Friend Society, The, 550 W. 20th St., New York City.
American Society for the Prevention of Cruelty to Animals, 50 Madison Ave., New York City.
Boy's Clubs of America, Inc., 381 Fourth Ave., New York City.
Boy Scouts of America, 2 Park Ave., New York City.
Camp Fire Club of America, 50 Union Square, New York City.

Children's Aid Society, 105 E. 22nd St., New York City.

Federal Council of the Churches of Christ in America—Commission on the Church and Social Service, 297 Fourth Ave., New York City.

Girls' Friendly Society of the U.S.A., 386 Fourth Ave., New York City.

Girls' Service League of America, 138 E. 19th St., New York City.

Humane Society of New York, 313 E. 58th St., New York City.

National Catholic Welfare Conference, 1312 Massachusetts Ave., N.W., Washington, D.C.

National Social Work Council, 50 W. 50th St., New York City.

Young Men's Christian Assn., International Committee, 215 W. 23rd St., New York City.

Young Women's Christian Association, 600 Lexington Ave., New York City.

SOCIAL FRATERNITIES

Benevolent and Protective Order of Elks of the U.S.A., 2750 Lake View Ave., Chicago, Ill.

International Assn. of Lions Clubs, 332 S. Michigan Ave., Chicago, Ill.

Kiwanis International, 520 N. Michigan Ave., Chicago, Ill.

Knights of Columbus, P.O. Drawer 1670, New Haven, Conn.

Knights of the Ku Klux Klan, Inc., 55 Roswell Rd., Atlanta, Ga.

Knights of Pythias, 1054 Security Bldg., Minneapolis, Minn.

Loyal Order of Moose, Mooseheart, Ill. (Supreme Lodge of the World).

Modern Woodmen of America, 1504 Third Ave., Rock Island, Ill.

Rotary International, 35 E. Wacker Drive, Chicago, Ill.

Sovereign Grand Lodge of the Independent Order of Odd Fellows, 16 W. Chase St., Baltimore, Md.

Supreme Council of the Royal Arcanum, 407 Shawmut Ave., Boston, Mass.

Supreme Council, 33° Ancient & Accepted Scottish Rite.—Northern Jurisdiction, 117 Statler Bldg., Boston, Mass.—Southern Jurisdiction, 1733 16th St., N.W., Washington, D.C.

Woodmen of the World, 1447 Tremont Pl., Denver, Col.

(SOCIAL) HOME LIFE

Community Service Society of New York, 105 E. 22nd St., New York City.

Landlords' Co-operative Assn., 18 E. 41st St., New York City.

National Housing Assn., 105 E. 22nd St., New York City.

National Plant, Flower & Fruit Guild, 1192 Sixth Ave., New York City.

(SOCIAL) CHILDREN

Big Brother and Big Sister Federation, Inc., 425 Fourth Ave., New York City.

Big Brother Movement, Inc., 315 Fourth Ave., New York City.

Camp Fire Girls, Inc., 88 Lexington Ave., New York City.

Child Conservation League of America, 318 W. Washington St., Chicago, Ill.

Child Welfare League of America, 130 E. 22nd St., New York City.

Children's Aid Society, 105 E. 22nd St., New York City.

Committee on World Friendship Among Children, 297 Fourth Ave., New York City.

Hebrew Sheltering and Immigrant Aid Society, 425 Lafayette St., New York City.

National Child Labor Committee, 419 Fourth Ave., New York City.

National Child Welfare Assn., 70 Fifth Ave., New York City.

(SOCIAL) HEALTH

American Assn. of Social Workers, 130 E. 22nd St., New York City.

American Child Health Assn., 50 West 50th St., New York City.

American Foundation for the Blind, Inc., 15 West 16th St., New York City.

American Humane Assn., 50 Madison Ave., New York City.

American Mission to Lepers Inc., 156 Fifth Ave., New York City.

American Social Hygiene Assn., Inc., 50 W. 50th St., New York City.

Anti-Profanity League, Ware, Mass.

Association for Research in Human Heredity, Cold Springs, L. I., N. Y.

Better Films, National Council, 70 Fifth Ave., New York City.

Birth Control Federation of America, 501 Madison Ave., New York City.

Community Service Society of New York, 105 E. 22nd St., New York City.

National Committee for Mental Hygiene, 50 West 50th St., New York City.

National Health Council, 50 West 50th St., New York City.

National Housing Assn., 105 E. 22nd St., New York City.

National Recreation Assn., 315 Fourth Ave., New York City.

National Save-A-Life League, Inc., 299 Madison Ave., New York City.

New York Society for the Suppression of Vice, 215 W. 22nd St., New York City.

Non-Smokers' Protective League of America, 290 W. End Ave., New York City.

Travelers' Aid Society of N.Y., 144 E. 44th St., New York City.

(SOCIAL) TEMPERANCE

Anti-Saloon League of New York, 44 Howard St., Albany, N. Y.

National Temperance Society, 287 Fourth Ave., New York City.

World Narcotic Defense Assn., 578 Madison Ave., New York City.

FOUNDATIONS

Carnegie Endowment for International Peace, 405 West 117th St., New York City.

Carnegie Foundation, 522 Fifth Ave., New York City.

Carnegie Hero Fund Commission, 2307 Oliver Bldg., Pittsburgh, Pa.

Carnegie Institute of Washington, 16th and P Sts., N.W., Washington, D.C.

General Education Board, 49 W. 49th St., New York City.

Guggenheim Foundation, 551 Fifth Ave., New York City.

Hall of Fame for Great Americans, New York University, University Heights, New York City.

Moro Educational Foundation, 475 Fifth Ave., New York City.

Rockefeller Foundation, 49 W. 49th St., New York City.

Rockefeller Institute for Medical Research, York Ave. and 66th St., New York City.

Roosevelt Memorial Assn., 28 E. 20th St., New York City.

Russell Sage Foundation, 130 E. 22nd St., New York City.

Woodrow Wilson Foundation, 8 W. 40th St., New York City.

WOMEN'S WORK AND PROGRESS

American Assn. of University Women, 1634 I St., N.W., Washington, D.C.

American Nurses, Assn., 50 W. 50th St., New York City.

American Women's Assn., 353 W. 57th St., New York City.

General Federation of Women's Clubs, 1734 N St., N.W., Washington, D.C.

Girls Service League of America, 138 East 19th St., New York City.

National American Woman Suffrage Assn., Grand Central Terminal, New York City.

National Association of Women Painters and Sculptors, 42 W. 57th St., New York City.

National Council of Women of the U.S. Inc., 501 Madison Ave., New York City.

National Federation of Business and Professional Women's Clubs, 1819 Broadway, New York City.

National League of Women Voters, 726 Jackson Place, N.W., Washington, D.C.

National Woman's Christian Temperance Union, 1730 Chicago Ave., Evanston, Ill.

Professional Woman's League, Broadway and 73rd St., New York.

Quota Club International, Inc., 1204 18th St., N.W., Washington, D.C.

Women's Educational and Industrial Union, 264 Boylston St., Boston, Mass.

Women's Roosevelt Memorial Assn., 28 E. 20th St., New York City.

Women's Trade Union League, 247 Lexington Ave., New York City.

DIVISION XVI

LABOR AND LABOR LEGISLATION

LABOR CONDITIONS AND LEGISLATION

By Witt Bowden

United States Bureau of Labor Statistics

GENERAL

Outstanding developments relating to labor in 1940 were labor's part in the defense program and the effects of the program on labor. The workers, it was held, were the first major group in the United States to recognize the real nature of the struggle in Europe. There was vigorous labor support of the defense program, combined with a determination to prevent the emergency from being used to curtail the rights of labor or to beat down labor standards.

There was a marked decline of labor disputes. Industrial relations tended to become stabilized on the basis of the rights of union membership and collective bargaining maintained by such agencies as the National Mediation Board and the National Labor Relations Board. The American Federation of Labor and the Congress of Industrial Organization remained apart but collaboration increased through such agencies as the Labor Policy Advisory Committee.

Wages advanced somewhat; hours underwent no great change; employment increased materially. Shortages of some types of skilled labor developed in certain localities, calling for more effective tapping of the unemployed labor supply and for an extension of training programs. There remained a large amount of unemployment and of unused productive capacity, especially in the consumption-goods industries. Therefore, the various demands for a general lengthening of the working week and for curtailing consumption on the basis of having to choose between "guns and butter" were countered by insistence that such a choice becomes necessary only upon the attainment of full employment and maximum productivity and that the maximum productivity of labor in turn depends on the maintenance of adequate standards.

LABOR AND NATIONAL DEFENSE

During the early part of 1940 the seemingly slow pace of war in Europe caused a widespread feeling of remoteness and security. The later intensification of warfare, and especially the conquest by Germany of successive European countries, brought to the people a sudden realization of the gravity of the situation. The focus of attention shifted from the war's long-range effect on the United States to the immediate problem of the most effective method of defending America against the forces that were rapidly destroying the nations with points of view and institutions similar to our own.

The workers of the United States had already become keenly conscious of the fate of unions in Germany whose rulers in the summer of 1940 suddenly extended their domination and wiped out in conquered countries as well as in their own country the labor organizations and forms of industrial collaboration that represented generations of progress in the recognition of labor's interests and right to share in the processes of democratic decision and action. So menacing was the European situation that the outstanding international institution embodying this progress and procedure, the International Labor Office, was forced to withdraw from Europe. A temporary refuge was found at McGill University in Montreal.

In a speech on labor and national defense on Dec. 16, 1940, the president of the American Federation of Labor declared that the workers of the country, "long before any comparable group in this country was awake to the facts," fully realized the character of the struggle in Europe as involving "their personal stake." They realized, it was stated, "that the first act of a dictator on seizing power in any country is to destroy the free trade unions of that country and to substitute a form of regimented labor that is equivalent to economic slavery." He added further that the struggle involves "a choice between extinction and survival."

In a speech on Oct. 22, 1940, the president of the Amalgamated Clothing Workers of America, in his capacity as Labor Commissioner of the National Defense Advisory Commission, declared that "labor's aspirations and its free choices are after all the first casualties of dictatorship." In speaking of the conflict in all parts of the world between democracy and dictatorship, he stated: "We cannot escape that struggle, even if we would."

The point of view of the various labor organizations, as represented by the Labor Policy Advisory Committee of the Defense Commission, was expressed in a declaration of policy made by the Committee on Dec. 8. The Committee is made up of representatives of the American Federation of Labor, the Congress of Industrial Organizations, and the railroad brotherhoods. "Labor knows," the statement of policy declared, "that it is the first to be trampled under the march of dictatorship. Labor knows that if workers are to remain free men and keep their free choices, democracy—as a living faith, as a living reality—must be equipped to meet the threat of totalitarianism within and without. Labor has been—and is—cooperating wholeheartedly throughout the entire defense effort."

LABOR IN THE DEFENSE AGENCIES

Under the authority of a law passed in 1916, the President of the United States on May 28, 1940, appointed the National Defense Advisory Commission to coordinate and organize the nation's resources and materials for defense. The Labor Division of the Commission was headed by the president of the Amalgamated Clothing Workers of America. The Labor Division created a Labor Policy Advisory Committee, consisting of six men representing the A. F. of L., six representing the C. I. O., and four representing the railroad brotherhoods. The special work of the Labor Division includes planning for an adequate supply of man-power in essential industries, arranging for the proper training of workers in so far as the existing supply is not enough, and maintaining labor standards.

Two other divisions of the National Defense Advisory Commission that have a significant bearing on the interests of labor are those of Consumer Protection and of Price Stabilization. A special agency under the Commission related closely to labor's interests is the Office of the Coordinator of Defense Housing.

The increasing urgency of the European situation led the President on Dec. 20 to centralize the more vital problems of policy in the Office for Production Management in charge of a director and an associate director, with the Secretary of War and the Secretary of the Navy serving as members. The President explained that the conception underlying the new agency was essentially functional, taking into account the three elements involved in production, namely, management, represented by the director; labor, represented by the associate director; and the buyer-user, represented by the

Secretaries of War and Navy. The purpose of the new agency was "to consolidate and coordinate the various activities now in operation to provide an adequate national defense." It was stated by the director of the Office for Production Management, on behalf of the members at their first meeting on Dec. 21, 1940, that the new arrangement was "born out of a consciousness of the heightened gravity of the world situation and a recognition that the contest which produced this crisis is irreconcilable in character and cannot be terminated by any methods of appeasement."

The head of the Labor Division of the Defense Commission was appointed by the President as Associate Director of the Office for Production Management. The appointment of a labor-union official to this post gave to organized labor an unprecedented position in official circles. The importance of the position was accentuated by the President's statement to the effect that decisions by the Office for Production Management would be unanimous and that under constitutional and statutory limitations final responsibility would be reserved by the President himself.

DECLINE OF INDUSTRIAL DISPUTES

An outstanding characteristic of 1940 was the decline of industrial disputes. During the first nine months of the year, the amount of idleness in connection with strikes was only 31 per cent as great as in the same period of 1939, only 62 per cent as great as in the same period of 1938, and only 17 per cent as great as in the same period of 1937. The number of strikes during each of the 12 months from November 1939 to October 1940 was smaller, with the exception of two months, than the average for 1939. The number of workers involved in strikes in 1939 averaged 97,580 per month. The largest number of workers involved in strikes beginning in any month from November 1939 to October 1940 was 63,000, and the smallest number was 12,350. The man-days idle in 1939 averaged 1,484,000 per month. The number in November 1939 was somewhat larger, namely, 1,665,000. After November 1939 the largest number of man-days idle in any month up to October 1940 was 865,000 and the smallest number was 239,000.

A slight upward tendency in strike activity was apparent late in 1940. Measures adopted toward the end of 1940 or early in 1941 for avoiding strikes included actions by important international unions to prevent strikes by their constituent unions, especially in defense industries in which employers agree to collective bargaining and methods for adjudication of disputes.

MAIN INDUSTRIAL DISPUTES OF 1940

The strikes of 1940 were small and for the most part of short duration. There was a decline of strike activity for obtaining recognition of unions and the right of collective bargaining. This object of strike activity was the main factor with only about a third of the men involved in strikes up to October 1940, in contrast to about 54 per cent in 1939.

A strike involving about 15,000 workers and lasting a month (Aug. 26 to Sept. 26) was that of the painters in the New York City area. The strike was ended, after the mayor intervened, on the basis of an agreement to arbitrate the questions involved, which related mainly to wages and hours. In the same area there was a two-day strike (July 11-12) of 15,000 workers in the cloak, suit, skirt, and reefer industry. In the St. Louis area a stoppage of a single day was staged in October, by 26 building trades, in protest against the killing of a union picket. Scattered strikes in the western Washington lumber area for higher wages and vacations with pay involved several thousand workers and continued in some of the mills for a number of weeks before compromise terms of settlement were accepted toward the end of the year.

The strike that attracted the most widespread attention was in the

Vultee aircraft plant at Downey, Calif., Nov. 15-26. The strikers were members of the United Automobile Workers of America. The strike occurred during the C.I.O. convention and at a time when there was widespread alarm from talk of a serious lag in the defense program. It was also rumored that a slight delay in settling the controversy was caused by Communists. These circumstances vastly exaggerated in the popular view the importance of the strike as an impediment to the defense program. The number of workers involved was only about 5,000 and these were idle only seven working days. The strike resulted in bringing the wages of beginners more nearly into line with rates of similar workers elsewhere. Beginners' rates were raised from 50 cents to 55 cents an hour, with gradual increases up to 62.5 cents at the end of four months. Grievance machinery was created, and strikes were barred for the life of the contract.

CAUSES OF DECLINE OF INDUSTRIAL DISPUTES

The activities of the mediation and conciliation services of the Government contributed significantly to the adjustment of industrial disputes. The Conciliation Service of the Department of Labor continued to function extensively upon requests by employees, employers, and other interested parties. In addition, the Labor Division of the Defense Commission served as an agency for keeping watch on difficult situations in the industries most directly connected with defense and for preventing as far as possible the development of conditions tending to give rise to disputes.

A major factor in stabilizing industrial relations was the recent extension of labor organizations and of collective agreements. The unprecedented scope of unionized industry and of collective agreements includes many of the major industries most vitally affected by the defense program, such as iron and steel, rubber, and automobiles.

Not the least of the stabilizing forces was the National Labor Relations Board. The function of this agency, as set forth in the act of Congress establishing it, is the maintenance of the rights of workers to join unions of their own choice and to bargain collectively through their unions with their employers. The initial stages of the work of the National Labor Relations Board were marked by many industrial disputes centering around the recognition of unions by employers and the exercise by the unions of their statutory right of collective bargaining. In 1940, however, there was a much more general recognition of the constitutionality and practical validity of the statutory defenses of the workers as embodied in the National Labor Relations Act. As a result, there was an unprecedented stabilization of industrial relations on the basis of a recognition of the rights of workers. Moreover, collective bargaining was recognized increasingly not merely as the process of making an agreement but also as a continuing process involving the day-by-day work of joint committees for adjusting grievances and administering the provisions of collective agreements.

Another factor of considerable importance in reducing industrial controversies was the achievement, through collective agreements and public policies, of relatively high standards of wages, hours, and working conditions. The attainment of these standards was made possible by remarkable increases in recent years in the productivity of labor, or, conversely, by reductions in wage cost per unit of output.

CONTINUED DIVISION IN ORGANIZED LABOR

In spite of various efforts to bring together the American Federation of Labor and the Congress of Industrial Organizations, the two main branches of the organized labor movement remained apart. On Nov. 19 the President in a letter to the head of the A.F. of L., on the occasion of the 60th convention of the organization, appealed for "an unselfish, a far-sighted, and a patriotic effort to bring about a just and an honorable peace" for promoting national unity and national defense "either by unity or by a sensible working arrangement." The president of the Federation replied that a committee representing his organization stood ready and willing to meet a committee representing the C.I.O. for negotiating a settlement at any time and at any place. The C.I.O. convention adopted a recommendation that the convention continue in existence its negotiating committee, with authority "to participate in any future negotiations, looking forward to real labor unity."

Although there was no formal peace and no immediate prospect of reunion of the A.F. of L. and the C.I.O., there was an abatement of bitterness, accompanied by increased collaboration through such agencies as the Labor Policy Advisory Committee of the Defense Commission and joint committees for special purposes suggested by the Department of Labor. There was also a decline of antagonism springing from duplicate organizing activities. Neither the A.F. of L. nor the C.I.O. agreed, however, to such a proposal as that made by the National Association of Manufacturers to the effect that the unions desist for the period of the defense emergency from extending their organization work. Such a "stand-still" agreement, it was held, would in effect deny to unorganized workers their statutory rights of union membership and collective bargaining.

THE AMERICAN FEDERATION OF LABOR

The annual convention of the American Federation of Labor met in New Orleans Nov. 18-29. Reports to this convention indicated a membership of 4,247,000, the highest membership in the history of the Federation. This number did not include the 80,000 members of the International Typographical Union, which was suspended after the 1939 convention. There was, however, an addition of 225,000 members by virtue of the fact that the International Ladies' Garment Workers' Union, which had withdrawn from the Federation, rejoined it in June 1940.

The A.F. of L. convention took action to support the national defense program and urged that, in the carrying out of the program, every possible safeguard be adopted "against transforming our democracy into a dictatorship in order to defeat the machinations of dictators." Among the safeguards recommended was the maintenance of majority rule; the carrying on of the defense program by "representatives of functional groups, headed by a civilian administrator"; labor representation on all defense agencies affecting labor's welfare, including policy-making and administrative agencies and draft boards; the maintenance of labor standards and other provisions for social welfare as essential to efficient production as well as to national morale; and if war should ensue, the recognition of the universal obligation of service for defense, industrial or military. It was held that the defense program should include the requirement that all employers obtaining public contracts conform to labor laws such as the National Labor Relations Act.

A union problem of outstanding public interest was racketeering. An anti-racketeering resolution was submitted to the 1940 A.F. of L. convention by the delegation of the International Ladies' Garment Workers' Union. This resolution proposed that all national and international affiliates of the Federation be required to include in their constitutions adequate provisions for preventing racketeering, with grants of power to the executive council of the Federation for removing any union official convicted of offenses commonly associated with racketeering. In place of this resolution, a recommendation of the resolutions committee was adopted by the convention. The resolution as adopted merely advised national and international affiliates of the Federation to amend their constitutions to deal effectively with racketeering; and instead of providing for mandatory authority on the part of the Federation's executive council, the resolution stated that "whenever the executive council has valid reason to believe that a trade-union official is guilty of any such offense and the national or international union in question seemingly evades its responsibility, the executive council shall be authorized to apply all of its influence to secure such action as will correct the situation."

The A.F. of L. supported most of the recent public policies designed to protect the interests of workers. In one field, however, there was vigorous criticism. This was the application of the anti-trust laws to labor organizations. The Department of Justice contended that various admitted abuses in organized labor, such as collusion between unions and employers or associations of employers, can best be curbed by prosecutions under the anti-trust laws, and that such a policy is in the interest of labor. An instance of the policy of the Department of Justice was its action in the tile industry. Indictments were returned in Detroit in December 1939, in Chicago in January 1940, and in St. Louis in May 1940, against manufacturers and contractors as well as unions. The case resulted in acceptance of a general decree for removing the causes of similar complaints throughout the country and in an agreement by the unions and the contractors' association to accept the duty of controlling and disciplining their local bodies.

The policy of the Department of Justice was strengthened by a decision of the Supreme Court in 1940 in the Apex Hosiery case. This decision declared, to be sure, that the Sherman anti-trust law was not applicable to the case in question, affecting claims of the Apex Hosiery Company against a union for damages during a sit-down strike. The Court held, however, that unions are not exempt from the law in cases involving combinations or conspiracies for interfering with free competition or attempting to restrict production, raise prices, or control markets to the hurt of buyers or consumers. The A.F. of L. convention held, however, that prosecutions of unions under the anti-trust legislation were in reality attacks on unions as such. It held that all real abuses in unions are covered by other laws and that these should be invoked if abuses can be shown to exist.

President William Green was reelected at the 1940 convention, as were most of the other officials of the Federation. The convention voted to hold its 1941 meeting in Seattle, Wash.

THE CONGRESS OF INDUSTRIAL ORGANIZATIONS

The C.I.O. convention met in Atlantic City, N. J., Nov. 18-22. Outstanding events were the resignation of President John L. Lewis and the election of Philip Murray, chairman of the Steel Workers' Organizing Committee and vice president of the C.I.O., to take his place. This change aroused intense national interest because of the bold and outspoken methods of Mr. Lewis, particularly in the political field in supporting the Republican presidential nominee and pledging himself to resign as head of the C.I.O. if the Republican nominee should be defeated.

Upon advise of counsel, formal membership figures of the C.I.O. affiliates were not released. The approximate membership as indicated by the voting strength of the various organizations composing the Congress was 3,623,000. The largest of the constituent organizations is the United Mine Workers of America, headed by Mr. Lewis, with about 600,000 members. Other outstanding organizations ranging in estimated membership from 535,000 to 123,000 are the Steel Workers' Organizing Committee, United Automobile Workers of America, Textile Workers Union, Amalgamated Clothing Workers of America, United Electrical, Radio, and

Machine Workers, and Cannery and Agricultural Workers.

In dealing with the subject of most general interest, namely, the defense program, the C.I.O. convention adopted resolutions that emphasized the maintenance of the highest possible labor standards. Support was pledged for the outstanding labor laws of recent years, such as the National Labor Relations Act, Fair Labor Standards Act, Public Contracts Act, and Social Security Act. The convention urged that "labor be given representation in all the divisions of the National Defense Advisory Commission and in all policy-making governmental agencies equal in number and authority to representatives of industry." The new president of the C.I.O. advocated the establishment of representative industry boards. He proposed that in each of the important industries affecting national defense a joint board be created representing labor, management, consumers, and the Government. Disputed matters, it was held, should be adjusted by industry boards of review or ultimately by an over-all national board with labor representation.

There was a somewhat exaggerated public interest during the year on the comparatively small number of union members who were Communists and Communist sympathizers, some of whom were alleged to have unpatriotic or un-American inclinations. The C.I.O. convention's resolutions on the subject of subversive activities included the following statement: "We neither accept nor desire—and we firmly reject—consideration of any policies emanating from totalitarianism, dictatorships, and foreign ideologies such as Nazism, Communism, and Fascism. They have no place in this great modern labor movement. The Congress of Industrial Organizations condemns the dictatorships and totalitarianism of Nazism, Communism, and Fascism as inimical to the welfare of labor and destructive of our form of government."

UNIONS IN NEW YORK CITY'S TRANSPORTATION SYSTEM

The taking over of important branches of the New York City transportation system by the Municipal Board of Transportation created a new situation for the transportation workers of that city. The Transport Workers' Union, a C.I.O. affiliate, alleged that the Board of Transportation failed to keep its promise to observe the terms of collective bargaining agreements between the union and the former private managements. These agreements, it was held, were taken over by the city when the transit system was unified in June 1940. Under the municipal transit system, questions arose as to the right of civil service employees to strike, the validity of a union-shop clause, and other provisions of the union's agreements with the former managements. Final solution of these problems was deferred.

THE BROTHERHOODS AND OTHER UNIONS

Outside of the A.F. of L. and the C.I.O., there were few important developments among labor organizations. The railway brotherhoods continued their normal work of adjusting complaints and maintaining collective bargaining as a continuous process through the work of their local and regional grievance committees, and in this way contributed significantly to industrial peace and the maintenance of efficiency in the vital areas of railroad transportation during the period of preparation for national defense. The Workers' Alliance, operating mainly among the W.P.A. and unemployed workers, experienced internal dissensions which caused the president of the Alliance to resign on the ground that it had come to be dominated by Communists and to form a new group known as the American Security Union.

WEAKNESSES OF LABOR UNIONS

Racketeering, jurisdictional disputes, and internal animosities resulting in the victimizing of employers or the public are among the more obvious weaknesses of the organized labor movement. The unusual attention given to these conditions, however, both by the unions and by the public, indicated a recognition of abuses and a desire to eradicate them. A minor step in this direction was the action of some of the international unions in cutting down and making uniform their initiation fees. The publicity given to a few spectacular instances of union racketeering tended to obscure the fact, pointed out by the new head of the National Labor Relations Board, that racketeering by union leaders "usually appears in conjunction with racketeering by employers. It is possible only where business men permit it to exist."

The labor movement experienced a certain confusion and weakness, exaggerated in the public mind but not without importance, as a result of conflicts between the conservative and radical elements. This confusion was aggravated by opposing views about the European situation, particularly after the agreement between Russia and Germany in 1939 immediately before the outbreak of war. The left-wing labor groups were themselves confused as to the meaning of the agreement but assumed that friends of Russia in this country should make their views conform to the change in relations between Russia and Germany. On the basis of their interpretation of this change, the scattered Communist members of unions and some non-Communist friends of the Russian experiment, formerly unqualified in their hostility to the Fascist nations, began to moderate their attacks on these powers and to criticize as "war mongers" the nations at war with the Fascist powers and the American advocates of opposition to Fascism through aid to Great Britain. Extremists on the right misconstrued the agreement as an alliance of Russia with Germany and made use of the situation for attempting to justify intensified attacks on the left-wing labor groups. Thus the "red-baiting" tendencies of ultra-conservatives in the labor movement were stimulated by the war situation abroad and by the defense emergency.

These conflicts of views among the extremists were accompanied by uncertainty throughout the labor world regarding the best policies to pursue in preparation for the ultimate transition from wartime or defense production to ordinary production. There was either a division of counsels or a failure to give serious thought to the problem of preparing for the maintenance of production and employment when it is no longer possible to depend on the stimulus of defense expenditures.

LABOR'S INTEREST IN MANAGEMENT

Although the labor movement remained divided organically and in conceptions of basic policy, there was evident in many of the unions, in their relations to management and to production techniques, a significant broadening of point of view.

The policy of the American Federation of Hosiery Workers adopted late in 1938 for collaborating with employers in reorganizing, mechanizing, and strengthening the competitive position of unionized plants was characteristic of the activities of many unions in 1940. The Amalgamated Clothing Workers of America continued their program of "stabilization" and standardization of labor costs throughout the country. This program was described as having done much to eliminate cut-throat competition between regions, between employers, and even between contractors of the same employer and to put an end to the "jungle" of sweatshops. Although extreme competition had been in considerable part at the expense of labor, the stabilization agreements were formulated with a view to serving the interests of the industry as a whole. At the convention of the Amalgamated Clothing Workers in May 1940 it was proposed to extend the plan throughout the United States and Canada. Under such agreements all manufacturers producing clothing of the same grade would pay the same wage rates on each garment.

The union at its 1940 convention authorized the use of an organizing fund of $1,000,000 to extend unionism, especially in the South, as a basis for the further extension of the stabilization agreements.

These arrangements with employers provide for expert collaboration by union officials and even financial aid by the unions for increasing the efficiency and reducing the costs of unionized firms. The significance of these arrangements is in the conception that the efficiency of both labor and management is the basis of high labor standards. This conception implies the necessity for a virtually compulsory extension of efficient methods to employers who might otherwise attempt to maintain their competitive position by sacrificing labor standards.

Somewhat similar developments have recently occurred in other labor organizations, notably the International Ladies' Garment Workers' Union. The organization in December 1940 set forth a program for reconstructing the industry. The program, which was presented to employers in connection with negotiations for a new contract, proposed not higher wage rates or shorter hours but rather a general reconstruction of the industry for increasing efficiency, cutting down seasonal idleness, and extending collective bargaining into an area commonly considered by employers to be exclusively the domain of ownership and management.

PROPOSALS OF UNIONS FOR SPEEDING DEFENSE

Labor's interest in management and productive efficiency found expression also in the defense program. A proposal of labor representatives early in the defense program called for the making of specialized parts under subcontracts in small plants, including idle or little used plants in "ghost towns." This plan of "farming out" defense orders found acceptance officially in a War Department memorandum of Dec. 27, 1940 in which it was urged that prime contractors sublet more of their work to small shops. This policy, it was agreed, would speed up production, require little additional capital investment, reduce the shifting of workers from their homes to the larger industrial centers, and create a minimum problem of defense housing and also of post-emergency readjustment.

A large-scale plan for specialization of production and for more adequate utilization of facilities, especially in the automobile industry, was proposed by the United Automobile Workers of America. The proposal, known as the Reuther plan, called for the establishment of a joint aircraft production board representing Government, management, and labor, the ascertainment of exactly what unused capacity is available for use in the production of a standardized type of war plane, and the assignment to the various plants of the tasks of manufacturing the parts for which they are adapted in accordance with their available capacity.

Labor organizations in 1940 found themselves in a position of unprecedented strategic advantage and responsibility. The rights of workers to organize and bargain collectively were recognized to an extent unknown before the acceptance by the country of the policies embodied in the National Labor Relations Act. These rights were embodied to an unprecedented extent in actual working agreements with employers. Collective bargaining, public policy, and the recent remarkable increase in the productivity of labor combined to place wages and working conditions on the highest levels ever attained.

AVERAGE HOURLY AND WEEKLY EARNINGS

Hourly earnings in manufacturing industries moved upward significantly during the later months of 1939 and again in the autumn of 1940. The average for manufacturing industries was 64.6 cents in October 1939 and 67.3 cents in October 1940. During the same period there were comparatively insignificant changes in most of the non-manufacturing industries. In retail trade, with its large and diversified branches, the general average was lower in October 1940 than in October 1939. In contrast, there was a rise in hourly earnings in wholesale trade. The data on union wage rates collected by the Bureau of Labor Statistics on June 1 each year in 72 cities indicate slight increases. In the building trades there was an increase of 1.4 per cent in the average hourly rate of journeymen between June 1, 1939 and June 1, 1940, and an increase of 2 per cent in the average rate for helpers and laborers. The average rate in the printing trades increased 1.4 per cent. The average entrance wage of adult male common laborers in 20 industries, as computed by the U. S. Bureau of Labor Statistics for identical establishments, was 49.7 cents in July 1939 and 50.8 cents in July 1940. The extreme diversity in hourly earnings by industry, by region, and by occupation continued in 1940 and seems to have been somewhat increased under the influence of competitive bidding for skilled workers.

In manufacturing industries as a whole, the average weekly wage, as computed from employment and payroll data reported to the Bureau of Labor Statistics, rose from $25.81 in October 1939 to $27.13 in October 1940. There was no substantial change in weekly earnings in manufacturing during this period until the late summer of 1940. The increase came about almost entirely in the durable-goods industries, in which group weekly earnings rose from $29.71 in October 1939 to $31.42 in October 1940. In the nondurable-goods group the average in October 1940 was approximately the same as in October 1939, the increase being only from $22.03 to $22.28.

CAUSES OF THE RISE IN EARNINGS

The rise in earnings seems to have been brought about in considerable part by an increase in the proportion of comparatively high-paid workers. There was, nevertheless, a significant rise in the earnings of workers in the lower grades of pay as a result of the operation of the Fair Labor Standards Act which covers industries affecting interstate commerce. On Oct. 24, 1939 a new general minimum of 30 cents an hour went into effect. This minimum was in effect throughout 1940 except in the industries that are covered by wage orders, providing for higher minimum rates, issued in accordance with recommendations of industry committees appointed under the act. Up to Jan. 6, 1941, 12 wage orders established minimum wages ranging from 32.5 to 40 cents.

In August 1939 average hourly earnings in all manufacturing industries combined were 63.4 cents, and between August 1939 and August 1940 there was an increase of 5.4 per cent. The only manufacturing industries with average hourly earnings above the general average and with increases greater than the average increase were aluminum manufactures, the brass, bronze, and copper products industry, fur-felt hats, and beet sugar. Industries with comparatively low wages and with increases greater than the average increase include cotton goods, sawmills, men's furnishings, boots and shoes, chewing and smoking tobacco and snuff, the cottonseed oil, cake and meal industry, and several others.

The Fair Labor Standards Act had some influence on wages indirectly through the reduction in the maximum hours of work permissible without overtime. On Oct. 24, 1939 the maximum was reduced to 42 hours per week and a year later to 40 hours per week. The conditions prevailing in 1940 tended to increase the demand for relatively high-paid skilled workers beyond the readily available supply, and the hours limitations of the Fair Labor Standards Act, therefore, tended to increase the amount of overtime paid for at overtime rates.

The increase in both hourly and weekly earnings resulted in considerable part from the comparatively large increase in employment in the high-wage industries and occupations. The durable-goods industries usually, although not without exception, pay higher wages than the nondurable-goods industries, and in the durable-goods group there were marked increases in employment and in hours of work in August, September, and October of 1940 as compared to these months in the previous year. In contrast, in the nondurable-goods industries employment and hours of work both somewhat declined. The increase in the proportion of employment in the industries with relatively high wages would have brought about an increase in average earnings even if there had been no increase in wage rates.

CHANGES AND FACTORS IN WORK HOURS

Average weekly hours of all wage earners in manufacturing industries were approximately the same in October 1939 (39.1) and in October 1940 (39.3). The average hours of employees in the durable-goods industries rose from 40.1 to 41, whereas hours in the nondurable-goods industries fell from 38.2 to 37.6. The Bureau of Labor Statistics' figures of average weekly hours are not the scheduled hours or hours of shifts or of plant operation because they are the averages of the hours of all workers, including part-time workers and of workers who, from various causes, such as vacations, illness, labor turn-over, and plant shut-downs, are not constantly employed. Weekly hours as defined by the Fair Labor Standards Act are regular or full-time hours.

Two main factors affected the average hours of work in 1940. One of these was the rise in levels of production. Increased production, especially in the defense industries and most of the durable-goods industries, resulted in fewer lay-offs and shut-downs, in less part time and part-capacity operation of plants, and in more overtime operation of plants. The Fair Labor Standards Act, on the other hand, reduced the permissible length of the working week except at overtime rates. This act provided for a maximum of 42 hours per week beginning Oct. 24, 1939 and for a maximum of 40 hours per week beginning Oct. 24, 1940, except for overtime paid for at overtime rates.

The effects on hours of the two contrary forces (increased business activity and the lowering of the maximum hours under the Fair Labor Standards Act) are indicated by the changes in hours in those manufacturing industries which, in August 1939, had average hours above the general average for all manufacturing. The average for all manufacturing in August 1939 was 38 hours. In spite of the lowering of the maximum working week (except for overtime), weekly hours in some industries rose sharply. Thus the increase from August 1939 to August 1940 was 10 per cent in engines, turbines, waterwheels, and windmills; 9.6 per cent in machine tools; 6.2 per cent in aircraft; 6 per cent in iron and steel forgings; 5.8 per cent in shipbuilding; 5.4 per cent in foundry and machine-shop products; and 4.9 per cent in electrical machinery, apparatus and supplies. In these industries the average hours were already, in August 1939, above the average. In contrast, many of the industries with hours above the average in August 1939, especially in the field of nondurable goods not closely connected with the defense program, experienced reductions of hours. Thus, there was a decline of 4.4 per cent in hours in knitted outerwear, 4.2 per cent in beet sugar, 3.9 per cent in cotton small wares, and 3.6 per cent in dyeing and finishing of textiles.

INCREASE IN EMPLOYMENT

Between November 1939 and November 1940, the estimated number of persons employed, including the military and naval personnel and also the self-employed, increased by about 1,677,000 persons. A considerable part of this increase was a reflection of the intensified defense activity. The increase was mainly industrial, but additions to the military and naval personnel numbered 420,000, and the estimated increase in total farm employment, including family workers, was almost 150,000.

The war situation and the defense program found reflection in a rise of 6.9 per cent in employment in manufacturing industries between August and November 1940. The increases were almost wholly in the durable-goods industries and were notable in the industries that have most direct bearing on the defense program. Thus, in iron and steel and their products (not including machinery), there was an increase of 19.9 per cent in employment during the first 12 months of the war in Europe (from August 1939 to August 1940) and a further increase of 7.8 per cent from August to November 1940. In electrical machinery, apparatus, and supplies, there was a rise of 21.4 per cent in employment during the 12 months and a further increase of 12.9 per cent from August to November 1940. Enployment in the making of transportation equipment (including airplanes) increased 35.5 per cent during the 12 months and there was a further increase of 41.1 per cent from August to November. In non-ferrous metals and their products, employment increased 20.2 per cent up to August 1940 and 13.5 per cent from August to November.

THE POTENTIAL LABOR SUPPLY

Large increases in employment in recent years and especially in 1940 have by no means exhausted the potential supply of labor. This is apparent from a comparison of estimates of current employment in contrast to estimates for 1929. Estimated total employment in November 1940, including the self-employed and military and naval personnel, numbered approximately 48,000,000 persons. This number is almost identical with the estimated average for 1929 and smaller than the estimate for November 1929. In the meantime, the population of the country increased about 8 per cent and estimates of the population 15 years of age and over, made in advance of the 1940 census, indicate an increase of about 14 per cent between 1930 and 1940. Thus the amount of increase in the working population between 1929 and November 1940 represents a potential labor supply. Even if employment at the present time included the same proportion of the working population as in 1929, there would still be a potential labor supply equivalent to the percentage of unemployment existing in 1929. The active file of applicants for jobs maintained by the United States Employment Service included in September 1940 a total of 4,914,000 applications.

Preliminary figures of the 1940 census on employment and unemployment indicate that in the last week of March 1940 more than 5,000,000 persons 14 years of age or over were unemployed (excluding W.P.A., N.Y.A. and C.C.C. workers) in the sense of having no work and of seeking work. These were not the sole source of the potential labor supply, as they do not include unpaid household workers and various other groups from which the labor force could be expanded. The potential labor supply is significantly affected by the existence of large numbers of workers, both industrial and agricultural, in positions that have been characterized as "disguised unemployment." A recent estimate by the Department of Agriculture, for example, indicates that there are approximately 2,000,000 workers on farms in excess of the number needed to produce the farm output called for by foreseeable market demands.

There was a large unused supply of labor and at the same time a labor-supply problem. It arose not from lack of workers in the aggregate but rather from a shortage of experienced or trained workers in certain industries and localities. These "bottlenecks" of skills were viewed with some alarm as an indication of an actual or impending general shortage of labor. They were also made the basis of proposals for general changes in national policies relating to hours of work. The "bottleneck" problems, however, were limited, and specific problems calling for solution by a carefully planned program of tapping available sources of skill among the unemployed and among those employed in non-essential industries, combined with the training, retraining, and transfer of workers.

WAGES AND NATIONAL INCOME

The Bureau of Labor Statistics' index of payrolls in manufacturing industries indicates a rise of 12.8 per cent from November 1939 to November 1940. In most of the non-manufacturing industries there were increases, notably a 17.9 per cent rise in building construction payrolls, 10.8 per cent rise in metalliferous mining payrolls, and 10.2 per cent rise in dyeing and cleaning establishments. In some of the non-manufacturing industries and in many of the separate manufacturing industries there were declines. In steam railroads the total compensation of wage earners increased 3.6 per cent between September 1939 and September 1940.

The most notable increases in wage payments were in the industries directly connected with the defense program. In some of the industries, particularly the industries with comparatively low wages, the changes under the Fair Labor Standards Act had an appreciable effect.

The estimates of monthly income payments made by the Bureau of Foreign and Domestic Commerce of the Department of Commerce indicate a rise of 6.2 per cent in total salaries and wages between October 1939 and October 1940. There was approximately the same increase in total non-agricultural income. The unadjusted figures of income from farm marketings show a rise of 9.3 per cent between October 1939 and October 1940.

PRICES AND COST OF LIVING

The Bureau of Labor Statistics' monthly index of retail food prices rose 5.2 per cent between Aug. 15 and Sept. 19, 1939, reflecting the speculative tendencies and uncertainties of the first month of the war. The quarterly index of cost of living was much more stable, rising only 2 per cent between June and September 1939. In the separate items making up the cost of living, the main increase was in food. Food prices had fallen sharply, however, between 1937 and August 1939, and the sudden rise was in part a reaction from earlier declines.

After the slight rise in cost of living early in the war, the index showed no significant variations up to November 1940. For the purpose of ascertaining the extent of change from month to month in particular localities, the Bureau of Labor Statistics, at the request of the Defense Commission, computed special indexes for 20 large cities.

Wholesale prices were much more sensitive than were retail prices and cost of living. Within a week after the invasion of Poland, the daily wholesale price index of basic commodities rose 20 per cent. These commodities included materials ordinarily obtained by importation, such as wool, tin, rubber, and cod liver oil. Many commodities produced at home also increased sharply in price. Among these were grain, livestock, cotton, and scrap steel. These increases were in considerable part speculative and were followed by sharp reactions which carried the general index downward slightly until August 1940. Thereafter, the intensification of the war and the adoption of the American defense program stimulated an upward movement.

The index of wholesale prices of all commodities rose 5.9 per cent between August and October 1939, declined 2.5 per cent between October 1939 and August 1940, and advanced 2.8 per cent between August and November 1940. In December, the weekly wholesale-price index underwent little change.

Economists were widely of the opinion that the upward movement of wholesale prices toward the end of 1940 was the result of forces much less speculative and temporary than those that brought about the upturn of the early months of the war. It was, therefore, held that retail prices and cost of living might be expected ultimately to follow the upward trend of wholesale prices. Price advances, however, may be held in check by indirect public controls and restraints and by readily available means of increasing productivity and expanding production.

RISE IN PRODUCTION

According to the Federal Reserve Board's production index, industrial production in October 1940 was 6.6 per cent greater than in October 1939. This increase was almost wholly in the durable-goods group of manufactures. Production in this group increased 17.1 per cent during the 12 months, and in the nondurable-goods group, less than 1 per cent.

The rapid expansion of industries connected with the defense program reduced relatively although not absolutely the production of ordinary consumption goods, represented predominantly by the nondurable-goods group. Between 1929 and the period of European warfare there had been a marked shift of emphasis from durable goods to nondurable goods. The index of durable-goods production in the year 1939 was lower than in 1929, whereas the index of nondurable-goods production rose about 16 per cent during this period. In major consumption-goods industries, the increase between 1929 and the period of the European war was materially greater than was the increase in population. These changes in the pattern of production in the Thirties resulted in part from a decline in the rate of growth of population and of cities and new communities, with a corresponding relative decline in the need for new capital goods. Another factor was the remarkable improvement in plant facilities and in methods of using them, making for longer usefulness and greater efficiency. There was thus a rapid development of capital-saving as well as labor-saving techniques. The renewed emphasis in 1940 on durable goods was one of the effects, presumably temporary, of war and the defense program.

LABOR PRODUCTIVITY AND UNIT LABOR COST

An outstanding characteristic of recent decades was the rapid rise in labor productivity, evident not only in manufacturing and mining but also in transportation, communication, and many of the service industries. Between 1909 and 1939, manufacturing industries as a whole showed an increase of 164 per cent in man-hour output; bituminous-coal mining, 103 per cent; and railroad transportation (1914 to 1939), 98 per cent. The increases in all these fields were almost uninterrupted throughout the period.

Accompanying the increases in the productivity of labor there were declines in the wage cost per unit of output. In important defense industries the wage cost per unit of output was strikingly lower in 1939 than in 1919: 38 per cent lower in blast furnaces, steel works, and rolling mills; 30 per cent lower in the smelting and refining of non-ferrous metals (1938 as compared to 1919); 57 per cent lower in petroleum refining; and 50 per cent lower in chemicals. The year 1919 was a period of upturn in both wages and prices. When the year 1923, a typical post-war year, is made the basis of comparison with 1939, the reductions in these industries were as follows: in blast furnaces, steel works and rolling mills, 20 per cent; in the smelting and refining of non-ferrous metals, 17 per cent; in petroleum refining, 40 per cent; and in chemicals, 22 per cent.

PRODUCTIVITY AND THE DEFENSE PROGRAM

The period of war and of defense activity, beginning in the latter part of 1939, was marked by conditions, presumably temporary, that tended to retard the rise in labor productivity. In some instances the use of less productive plants and of imperfectly trained or inexperienced workers affected the average output. The shift in the use of facilities for production to new types of output required retooling, retraining of workers, and other adjustments which temporarily slowed up the rise in man-hour output. There was some hiring of workers in advance of needs in anticipation of expanding market demands. Comparisons of indexes of employment or of man-hours on the one hand and of production on the other became increasingly difficult because of the lack of adequate production records for many new types of output.

Other circumstances tend, however, to accelerate the productivity of labor, especially after the necessary shifts in types of production are made and after needed adjustments in methods, management, and employee training are accomplished. Efficiencies and overhead savings are made possible by mass production and by the operation of plants at levels more closely approximating capacity. The expansion of the facilities for production is naturally accompanied by the use of improvements and of the more efficient methods of production. The stimulus of demand for output makes feasible the adoption of readily available techniques of management. Recent estimates indicate the possibility of a 20 per cent increase in productivity in the manufacture of war materials and equipment solely by raising the methods of management in most of the plants to the standards prevailing in the best plants. These various factors, after initial readjustments, may be expected to accelerate the upward trend of labor productivity.

The problems of bringing about increases in production differ in the defense industries from the problems in the ordinary consumption-goods industries. In the former it is necessary to eliminate certain "bottlenecks" of plant facilities, materials, and skilled labor. On the other hand, in the ordinary consumption-goods industries, in the service industries, and in agriculture, production remained in 1940 below productive capacity, and in most of these industries an increase of production is possible without hindering the expansion of the defense industries.

STATEMENT OF LABOR POLICIES BY DEFENSE COMMISSION

During 1940, and especially in the period of intensified defense production, there was a sharp conflict of views about the effects of labor policies on the defense program. This controversy led to a formal statement of labor policy on Sept. 1, 1940 by the Defense Commission. The statement affirmed support of the 40-hour week as contributing to the absorption of surplus and unemployed labor in the defense program, and at the same time recognized the importance of those provisions of the laws relating to hours that make possible a flexible working week. All work connected with the defense program, it was stated, should be carried on in compliance with all Federal and state laws affecting labor, and specific mention was made of the Public Contracts (Walsh-Healey) Act, the Fair Labor Standards Act, and the National Labor Relations Act. There was a reaffirmation of principles enunciated by the Chief of Ordnance of the United States Army in an order of Nov. 15, 1917, in which it was stated that the highest efficiency and productivity of labor are dependent on the maintenance of adequate labor standards and on the avoidance of a break-down of safeguards for protecting labor.

LABOR RELATIONS AND CONTRACT AWARDS

The statement of policy by the Defense Commission was too general in its terminology to put an end to controversy. There was a continuation, for example, of the conflict of views over the awarding of contracts to firms whose labor policies had been declared by the National Labor Relations Board to be in violation of the National Labor Relations Act. Employers against whom orders had been issued and who had appealed to the courts contended that contracts should not be withheld pending court decisions. On Oct. 3 the Attorney General, in response to a request from the Commissioner in charge of the Labor Division of the Defense

Commission, held that "the findings of the National Labor Relations Board that an employer is in violation of the National Labor Relations Act are binding and conclusive upon the other agencies of the executive branch of the Government unless and until these findings are reversed by a court of competent jurisdiction." It was noted that the opinion did not state whether violators should or should not be awarded contracts.

Differences of opinion regarding the policy of awarding contracts continued throughout the year. In support of the view that contractors on defense projects should be required to conform to the orders of the Board responsible for administering the National Labor Relations Act, it was held that the maintenance of the rights of labor under the act was an effective safeguard of the peaceful, constitutional processes that differentiate democratic countries from dictatorships. It was further held that the maintenance of these processes formed the necessary basis for efficiency and productivity in the carrying on of the defense program.

CONTROVERSY OVER LIMITATIONS ON HOURS

There were also differences of opinion regarding the limitations on hours of work embodied in the Fair Labor Standards Act and the Public Contracts Act. It was held by some employers that these limitations hindered the speeding up of production in the defense industries. In opposition to these views it was pointed out that the need for increasing the hours of plant operation was restricted to a comparatively few industries and occupations. The head of the Wage and Hour Division, charged with administering the Fair Labor Standards Act, pointed out that, as long as there was a large amount of unemployment, the law required that an increase in the demand for labor be met not by a lengthening of the working week but rather by hiring more workers. If skilled workers could not be obtained, the best solution of this problem, he insisted, would be the training of additional workers, for if the existing supply of skilled workers was employed to the point of exhaustion there would be no labor reserve to fall back on later, when the national situation might become even more critical. He pointed out also that if it were necessary, while training additional workers, to work overtime for meeting urgent schedules of production, the law permitted overtime at overtime rates. Furthermore, a lengthening of hours would not necessarily increase production because the productivity of workers is promoted by moderate hours of work.

WAGES AND STANDARDS OF LIVING

The policies of the Government in relation to wages continued to meet with some opposition. It was held by some employers that the requirement of overtime rates of pay for overtime work tended to retard the expansion of employment and production. It was reported that the Navy Department had found some difficulty in placing contracts with employers because of their reluctance to conform to the requirements of the Public Contracts Act. Wage policy was criticized on the general ground that it tended to raise wages and increase demand at a time when consumption should be curtailed in favor of defense production. The demand for consumption goods and services, it was contended, must be held in check either by a curtailment of consumer income or by a rise in prices which would of course tend to reduce real income.

It was recognized by proponents of the Government's wage policies that if any consumption-goods industry competes with essential defense industries for materials or tools or skills to the extent of creating shortages affecting defense production, such an industry should be restricted. It was pointed out, however, that the necessity for curtailing ordinary consumption (for choosing "guns or butter") arises only when there is full employment of men and of the facilities for production operating at maximum productivity. At the end of 1940 there was admittedly a large amount of unemployment, and the facilities for producing ordinary consumption goods and services were used far below their capacity.

Moreover, maximum productivity is dependent on the maintenance of adequate living standards, and there was convincing evidence that many of the wage-earning classes had incomes too small to maintain adequate living standards. American wage earners as a group, it is true, had achieved the highest standards of living of the workers of any country, and their standard of living was higher than at any time in the past. This fact, combined with the prospects of further improvement, in contrast to a breaking down of labor standards, was described as the nation's distinctive contribution to democracy and the basis of labor's most efficient participation in defense.

LABOR LEGISLATION

The arguments that a lowering of labor standards and the amendment or repeal of many of the labor laws would speed production under the defense program were used also in opposition to the enactment of new labor legislation. In Congress the proponents of recent public labor policies expended most of their energies on the maintenance of existing laws and labor standards. The legislatures of only eight of the states met in regular session.

Among the states, the most important body of labor legislation was passed by Kentucky. In that state, laws were passed establishing prevailing rates of wages on public works, increasing the maximum workmen's compensation in death cases, and providing for extensive changes in the administration of labor legislation. Other states also passed laws for the purpose of improving the administration of existing laws.

Legislation by Congress included amendments to some of the labor laws, as for example, the provision authorizing the President to suspend the Public Contracts Act in whole or in part if he considers it necessary in the light of the national emergency. An important measure affecting Civil Service employees was the act of Nov. 26, 1940 providing for the extension of the classified Civil Service to cover employees in most of the agencies not already so covered. The law provided that incumbents, in order to acquire a classified status, must pass non-competitive examinations.

A significant development in the field of legislation was the extension of Federal-state and interstate cooperation in the formulation of legislative policies affecting more than a single state, as for example, the interstate flow of migratory labor. These efforts at cooperative action extended also to the administration of labor laws and found expression, for example, in an increase in the number of states that cooperate in the administration of the Fair Labor Standards Act.

PROPOSED EXTENSIONS OF LABOR LEGISLATION

Although the year 1940 was marked by few new laws, proponents of labor legislation were not inactive, and they found support for various proposals in the President's address to Congress on Jan. 6, 1941. In a passage calling for the maintenance of a society most worth defending, he said: "Many subjects connected with our social economy call for immediate improvement. As examples: We should bring more citizens under the coverage of old age pensions and unemployment insurance. We should widen the opportunities for adequate medical care. We should plan a better system by which persons deserving or needing gainful employment may obtain it."

COURT DECISIONS

Two decisions of the Supreme Court relating to picketing were rendered on April 22, 1940. An Alabama law prohibiting picketing and loitering was declared by the Supreme Court to be unconstitutional, as was also an ordinance of Shasta County, Calif. making it unlawful to engage in picketing or to carry or display a banner near any place of business for the purpose of inducing any one to refrain from buying goods or performing labor. The decisions were based on the significant ground that the statute and ordinance, in view of their sweeping and inexact terms, could be used for suppressing freedom of speech and of the press. The Court declared that "in the circumstances of our times the dissemination of information concerning the facts of a labor dispute must be regarded as within that area of free discussion that is guaranteed by the Constitution."

Another decision of importance to labor, rendered on Nov. 18, denied the right of the courts to grant injunctions against labor unions on the ground of their alleged violation of the anti-trust laws.

The decisions of the Supreme Court in 1940 were particularly significant in clarifying and strengthening the administrative functions of governmental agencies. Some of these decisions are mentioned in other connections, as in the discussion of the National Labor Relations Board.

LABOR'S INTEREST IN ADMINISTRATIVE LAW AND PROCEDURE

The President, in his message of Dec. 18, 1940 to the House of Representatives, vetoing the Walter-Logan bill, described the work of administrative agencies in recent years as "one of the most significant and useful trends of the twentieth century in legal administration." He stated that the bill, if enacted, would "reverse and to a large extent cancel" this trend, in spite of the avowed objective, namely, the promotion of fair, expeditious, and orderly procedure in the conduct of public affairs.

The administrative process has outstanding significance for wage earners and other low-income groups who are not able to bear the costs of litigation in the courts or to obtain equality in the application of the highly technical rules of procedure and of evidence required in the courts. This point of view was expressed by the President of the Congress of Industrial Organizations in opposition to the Walter-Logan bill: "The measure imposes on workers seeking protection of Federal rights a prohibitive expense and allows those who deny these rights the easy opportunity to defend their violations by obstructive litigation and tactics." He stated further that the enactment of the bill would mean that labor's rights under Federal law, such as the rights to collective bargaining and social security benefits, would become fictitious "because the slender resources of workers can not support the burden of lengthy proceedings and consequent delay."

THE NATIONAL LABOR RELATIONS BOARD

The administration of the National Labor Relations Act continued in 1940 to arouse opposition from some employers and also from some of the unions which failed to obtain favorable decisions from the Board. A special House committee, appointed earlier, continued its investigation of the Board, and on Dec. 28, 1940 three of the five members issued a report criticizing the Board and recommending changes in the act. Two of the five members of the committee expressed the belief that the findings as embodied in the majority report did not "reflect an impartial fact-finding investigation." They pointed to the fact that, under the act, "tremendous strides have been taken in stabilizing industrial relations" and that "the number of strikes has been steadily dropping since the validation of this law by the Supreme Court."

The expiration of the five-year term of the first chairman of the Board was followed by his appointment to a judicial post and the selection of a new chairman. Few administrative agencies in the history of the United States ever encountered such serious obstacles as were surmounted by the National Labor Relations Board during this period. From the point of view of labor's interests, the outstanding significance of the Board's work was its contribution to the general acceptance of the rights of organization and collective bargaining.

This achievement was made possible by the establishment of the Board and of its administrative procedure on a firm constitutional basis. The Board, as the author of the National Labor Relations Act (Senator Wagner) pointed out, achieved an exceptionally favorable record in cases brought before the Supreme Court. Up to Jan. 6, 1941, 33 cases in which the Board was a party had come before the Court. In these cases, the Board's position was sustained in 29 instances. Included in the 33 cases were 25 cases involving the validity of orders by the Board. These orders were enforced in 18 cases, modified in four, and set aside in three.

WAGE AND HOUR ADMINISTRATION

The Fair Labor Standards Act of 1938 provided for a standard working week of 40 hours, to be achieved by a reduction from 44 hours, the initial maximum, to 42 hours at the end of the first year and from 42 to 40 hours at the end of the second year. The 40-hour provision thus came into operation on Oct. 24, 1940. The law, however, provides for overtime paid for at overtime rates.

The law calls also for the progressive attainment by 1945 of a minimum of 40 cents per hour, but no advance of the basic minimum of 30 cents per hour was provided for in 1940. The effects of the law on wages after Oct. 24, 1939, when the 30-cent minimum became effective, were in the operation of the provisions for overtime rates and in the work of the industry committees for advancing the minimum rates beyond 30 cents an hour in selected industries.

Nearly 2,000,000 wage earners in any week of average industrial activity were probably affected by the requirement of time-and-a-half pay after 40 hours, effective on Oct. 24, 1940. Several important industries were covered by the wage orders issued upon recommendations of industry committees. A total of 20 industry committees for continental United States had been appointed by the end of 1940. The more important fields were textiles, apparel, leather and leather goods, including boots and shoes, and railroad transportation.

The Wage and Hour Administration encountered problems of adapting the law to changing conditions connected with the defense program. There were increasing requests for exemptions and for relaxation of the provisions of the law, especially as to overtime. Some employers insisted that the administration of the act was too inflexible. Some of the labor organizations, on the other hand, held that there was a dangerous degree of flexibility, which tended to break down the standards prescribed by the law.

THE PUBLIC CONTRACTS BOARD

The great expansion of public contracts in the defense program gave additional importance to the Public Contracts Act of 1936 and its administration. This act provides for the payment of not less than prevailing wages (to be determined by the Secretary of Labor) and requires payment at overtime rates for overtime work. In addition, it requires contractors to provide safe and healthful conditions of work for employees engaged on public contract work and calls for the observance of state safety, sanitation, and inspection laws. At the end of 1940 a total of 32 wage determinations had been issued. These determinations affected major industries manufacturing materials and supplies for the Government.

The work and administrative procedure of the Public Contracts Board were upheld in a noteworthy Supreme Court decision of April 29, 1940, validating an order of the Secretary of Labor under the act establishing six prevailing wage areas or localities for the iron and steel industry. The Court held that the Government had authority to impose the conditions deemed necessary to carry out the main object of the law, namely, to "obviate the possibility that any part of our tremendous national expenditures would go to forces tending to depress wages and purchasing power and offending fair social standards of employment." The decision had special significance in its bearings on the development of administrative procedure. The courts, and in particular the lower court which had issued an injunction to forbid the execution of the wage determination, were warned against "unwarranted interference with deliberate legislative policy and with executive administration vital to the achievement of governmental ends."

UNITED STATES EMPLOYMENT SERVICE

Important changes occurred in the work of the United States Employment Service. In connection with the defense program, it analyzed the records of applicants for work for the purpose of furnishing current information on the amount and location of available skilled labor in key occupations and industries. This information facilitated the work of the Employment Service in supplying skilled workers, especially by shifts from one locality or industry to another. The information assembled by the Employment Service was also useful in the planning of training programs.

OTHER ADMINISTRATIVE AGENCIES

The development of the defense program called into service a number of agencies for building houses for workers in areas of expanding employment. Efforts were made also to provide for the general health and well-being of such workers and of the communities affected by the sudden influx of population. The defense program also affected the Work Projects Administration, the National Youth Administration, and the Civilian Conservation Corps. Their activities were shifted for emphasis on projects with a bearing on the defense program. At the same time, more rigorous requirements were enforced for W.P.A. employment. A new requirement was the signing of an affidavit that the person obtaining relief employment was not a Communist, a member of the Nazi Bund, an alien, or a member of an organization advocating overthrow of the Government. In December there was adopted a more rigorous policy of requiring persons employed on W.P.A. projects to accept *bona fide* offers of private or public employment. There was further expansion of the food stamp plan.

The Social Security Board reported that in December 1940 more than 52,000,000 persons had social-security accounts and that about 1,000 benefit claims were being approved daily, with benefit payments totaling $4,250,000 a month. It was also reported that more than 28,000,000 workers had protection under unemployment compensation plans. In July 1940 unemployment benefits totaled almost $56,000,000, but later increases in employment reduced the claims for unemployment benefits. It was reported also that every state and territory of the United States was taking part in public assistance under the Social Security Act, involving one or more of the programs of aid to the needy aged, the needy blind, and dependent children.

FARM LABOR

Estimated farm wage rates per day without board averaged $1.61 on Oct. 1, 1940, only four cents above the average on Oct. 1, 1939. Other farm wage rates also underwent minor changes. The average of farm wage rates without board in 1929 was $2.25, much higher than the current rate. In contrast, industrial wages were materially higher in 1940 than in 1929.

The estimated number of hired farm workers employed on Dec. 1, 1940 was 2,107,000 as compared to 2,104,000 on Dec. 1, 1939. The average number, however, in 1940 (2,450,000) was 29,000 smaller than the average for the year 1939. The increased use of labor-saving machinery and methods on farms and the restricted demand for American farm products in other countries account for a significant curtailment of opportunities for employment on farms. The number of farm workers remaining on farms is significantly larger than the number required to supply the foreseeable demand for farm products.

Wage earners on farms differ in many ways from urban wage earners.

Farm wage earners are a comparatively small proportion of the total rural population. Employment on farms is highly seasonal. Farm workers are comparatively isolated and scattered, although there is an appreciable concentration of workers on large commercialized farms. They encounter more serious difficulties than do urban workers in organizing and dealing collectively with employers. The National Labor Relations Act does not extend to farm wage earners and they are also excluded from the unemployment and old-age insurance benefits and from the operation of the Fair Labor Standards Act. They have comparatively slight protection in the field of workmen's compensation.

The outstanding farm-labor question in 1940 was the working out of practicable legislation and administrative procedures for dealing with admittedly grave problems. These problems, especially among migratory workers, concerned the relations of the workers not only to their employers but also to local communities, in respect to schooling, voting rights, rights to obtain relief work or public assistance, and other rights and responsibilities of citizenship. Interstate and Federal-state conferences were held and tentative measures were formulated. The Senate Civil Liberties Committee and the House Select Committee on Interstate Migration carried on hearings and investigations. The extension of large-scale, mechanized farming became increasingly apparent. Equally apparent was the feasibility as well as desirability of public policies for dealing with the more pressing problems of farm labor, especially migratory labor and the hired workers on large-scale farms and in related quasi-agricultural enterprises.

EMPLOYMENT CONDITIONS

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FLUCTUATIONS AND TRENDS

In the closing months of 1939 the trend of factory employment was sharply upward. The customary seasonal spurt in trade at the year-end likewise stimulated employment in that area. The volume of industrial production reached even higher levels, relatively, particularly in certain semi-manufactures and basic materials industries which increased their activity markedly after the outbreak of war abroad. During the first quarter of 1940, however, both production and employment declined considerably. The Federal Reserve Board index of industrial production (adjusted for seasonal variations) dropped from 122 in January, 1940, to 111 in April (1935-39 = 100).

In January, 1940, the decline in total non-agricultural employment was about 9 per cent greater than in the preceding year. In February and March, contra-seasonal declines in factory employment occurred, and factory employment thus failed to offset the customary seasonal layoffs in other fields. There was little change in the level of non-agricultural employment from March to April, although there is usually an upward trend in those two months. Not until June did a perceptible upturn begin.

In the last half of the year general improvement in the level of employment occurred. About 2,000,000 workers found employment between February and September. In October total non-agricultural employment was above any level since 1929, and the increase from September was, except for the corresponding month of 1939, the largest for 12 years. In November the index of industrial production was at 132 as compared to 114 in 1929 (1935-39 = 100).

The trend and level of total employment in 1940 were affected by contradictory and somewhat confused movements in the various fields of business activity. In the early spring, factory employment in industries which had been greatly stimulated by the desire to increase inventories after the outbreak of war was adversely affected by a succeeding effort in the direction of liquidation. A number of durable-goods industries, among them steel, electrical machinery, automobiles, hardware, and furniture, reported contra-seasonal declines in employment in February, 1940. In March further layoffs occurred in steel, machine shops, hardware, and in textiles.

In April and May there was further slackening of employment, in some cases (textiles, apparel, automobiles) seasonal, but at the same time marked expansion occurred in war-materials industries. Throughout the summer and early fall the employment increases began to spread to industries secondarily influenced by the defense program. The following table, showing indexes of employment compiled by the United States Bureau of Labor Statistics, and reflecting seasonal variations, provides a comparison of the course of month-to-month fluctuations in the durable and non-durable goods industries during 1940.

INDEXES OF EMPLOYMENT

1938–1940
(1923–25 = 100)

	All Manufacturing	Durable Goods Group	Non-Durable Goods Groups
1938 average.	86	76.2	95.4
1939 average.	96.8	87.9	105.4
1940			
January...	101.5	97.4	105.3
February..	101.4	96.5	106.1
March.....	100.8	96.4	105.0
April......	99.6	96.0	103.0
May......	99.0	96.5	101.5
June......	99.4	97.0	101.7
July.......	99.5	95.6	103.3
August....	103.6	99.5	107.6
September.	107.7	105.5	105.5
October....	109.9	109.7	109.7

Total non-agricultural employment in July, 1940, was estimated at 35,600,000, or about 1,000,000 more than in the same month of the preceding year. By October, 1940, the total was estimated at 37,000,000. The major part of the employment gain during the year was attributable to manufacturing industries which, after an early decline and slow start upward, had added 500,000 workers to their payrolls from October, 1939 to October, 1940.

DEFENSE PROGRAM AS A MAJOR FACTOR

The major factor in the employment situation in 1940 was the initiation of the defense program. Large awards of contracts did not occur until summer, and employment, of course, lagged somewhat after contract awards. Nevertheless, by September employment in the primary defense industries had increased 203,000 in 12 months. Estimated increases in employment over the average for 1937 in war-materials industries are shown in the table next page (U. S. Bureau of Labor Statistics):

Employment in industries stimulated indirectly by the defense program also showed improvement during the year. Among these industries were iron and steel, chemicals, electrical machinery, woolen and worsted goods, men's clothing, and brass, bronze and copper products. In September, 1940, employment in the secondary defense industries, such as iron and steel and chemicals, had increased 268,000 over September, 1939.

The table following shows employment levels in October, 1940, as compared with the same month a year previously. These figures are not adjusted for seasonal variations.

During 1940 the U. S. Bureau of Labor Statistics released monthly estimates of the number of employees in non-agricultural employment by states. Among the states showing the largest percentage increases in the numbers employed (excluding proprietors, self-employed persons, domestic servants, casual workers, W.P.A., C.C.C. and N.Y.A. workers) from August, September, and October 1939 to the same months of 1940, were Connecticut, New Jersey, Mich-

ESTIMATED NUMBER OF WAGE EARNERS IN WAR-MATERIALS INDUSTRIES

Industry	Average, 1937	Increase Over 1937 In		
		May	August	September
Shipbuilding	62,300	23,500	35,700	44,100
Aircraft	24,000	41,200	56,400	92,500
Machine tools	47,200	15,200	20,100	25,800
Engines	32,900	14,800	22,900	27,900
Aluminum Manufacturers	23,700	2,800	4,900	7,500
Explosives	5,400	1,600	2,900	(1)

[1] Not available.

igan, Delaware, Indiana, and Florida. The largest gain during the year occurred in the industrial East North Central area. New England, the South Atlantic section, and the Pacific Coast also experienced improvement in employment. A large part of the year's total employment improvement was due mainly to increased factory employment, and, to the extent that defense orders were the source of gains, was confined to rather limited geographical areas.

EMPLOYMENT IN MINING

Indexes of employment in mining are presented next page in the table (1929 = 100). The indexes for coal mining are adjusted to the 1935 census.

INDEXES FOR SELECTED INDUSTRIAL GROUPS

(U. S. Bureau of Labor Statistics)
Indexes of Employment
(1923–25 = 100)

Industry Groups	October* 1940	October 1939
Selected durable goods industries:		
Iron and steel	117.1	106.8
Machinery	127.0	106.6
Electrical equipment	115.9	97.3
Automobiles	123.6	107.8
Aircraft	4160.3	1703.5
Agricultural implements	134.7	117.8
Lumber and allied products	74.4	72.4
Selected non-durable goods industries:		
Textiles	104.6	108.0
Food products	140.9	137.7
Leather products	90.0	96.2
Tobacco manufactures	66.5	66.7
Chemicals and petroleum refining	125.0	122.3
Paper and printing	117.6	116.5

* Preliminary.

Only slight changes occurred in anthracite coal employment during 1940. Employment increased in the first three months of the year, and showed a contra-seasonal gain in July. Employment losses occurred in August, September, and October. Bituminous mining was favorably affected by increased industrial demand in midsummer, and employment showed seasonal gains in the fall.

Metalliferous mining employment was stimulated from May, 1940 onward by increased demands due to the war. From June through September, employment gains continued, and in the latter month employment was at the highest point since November, 1937.

CONSTRUCTION

The dollar value of construction contracts awarded monthly is reported by the F. W. Dodge Corporation for 37 eastern states. The Federal Reserve Board index of such awards, adjusted to eliminate the effect of seasonal variations, and with 1923-25=100, showed a decline from 86 in December, 1939 to 62 in March, 1940. Subsequent to that month, the volume of awards turned upward, and in July and August, contrary to the usual midsummer decline, the volume continued to expand, reflecting for the first time the effect of defense awards. The July total was the highest of any month since 1930. Defense awards amounted to $325,000,000 in June, $399,000,000 in July, and $203,000,000

MINING EMPLOYMENT

(1929 = 100)

	Employment Index 1933	Employment Index 1939	Employment Index, 1940 (10 months)	Per Cent Changes Sept. 1939 to Sept. 1940
Anthracite	59.5	50.6	51.1	+1.6
Bituminous	79.9	78.6	87.7	+3.5
Metalliferous	34.6	62.7	69.3	+15.4

for the first 15 days of August. The expansion occurred mainly in public works and in commercial and factory building.

Public works contracts awarded increased in value from $74,000,000 in June to $86,000,000 in July and to $100,000,000 in the first three weeks of August. Commercial and factory awards also increased rapidly, with July awards equalling 22 per cent of total awards for the first seven months of 1940. Publicly-financed contracts as a whole rose 83 per cent from May to July and were 51 per cent of all awards in the latter month. The total value of 1940 construction awards was over $9,900,000,000, or 2½ per cent higher than the 1939 figure and the highest annual amount since 1930 when the value of contracts awarded was $11,729,000,000. Private construction made the sharpest advance, rising 14 per cent to a total for the year of $3,985,000,000. Plant construction for the first 11 months was more than double that of the same period of 1939.

Accurate and complete figures on employment in construction are not available. Since employment lags behind the award of contracts, employment fluctuations reflecting the awards described above were delayed. Changes in construction employment reported by private building contractors to the U. S. Bureau of Labor Statistics are shown in the following table. The January decline was unusually severe due to adverse weather conditions, and employment improvement, according to these reports, was slow until April. In May, June and July, the percentage increases in employment were more than seasonal and monthly increases persisted through October, when the level of employment stood 23.6 per cent higher than in the corresponding month of 1939. These figures exclude Federal construction employment.

PER CENT CHANGES IN EMPLOYMENT IN BUILDING CONSTRUCTION

1940	From Preceding Month	From Corresponding Month of 1939
January	−16.7	−1.5
February	+1.0	+1.9
March	+3.0	−2.0
April	+11.7	−1.0
May	+13.6	+5.4
June	+5.1	+9.3
July	+5.9	+10.7
August	+5.2	+15.6
September	+2.9	+18.2
October	+4.0	+23.6

The estimates of total non-agricultural employment (including the self-employed and casual workers) issued by the U. S. Bureau of Labor Statistics include estimates of total employment on construction. These estimates, which omit W.P.A. employment, show an increase from 1,317,000 construction workers in June, 1940 to 1,514,000 in October. Except for July, the number employed in each month during the last half of the year exceeded the estimated number employed in the corresponding month of 1939, the improvement being particularly marked in October.

RAILROAD EMPLOYMENT

Employment on railroads in recent years has been adversely affected by the increasing competition of other means of transportation and by technological improvements that reduced the amount of labor required, as well as by cyclical depression.

Since 1929, not only employment in railroad transportation but also employment in manufacture of ways and structures and of equipment have reflected the fluctuations in net railway operating income. The manufacture and repair of cars and locomotives has been especially affected by the declines in traffic during the depression. The low point in employment in manufacture of cars and locomotives was reached in 1933. Federal aid to the railroads in 1934 began an upward trend in manufacturing employment which continued to the middle of 1937. At that time, the index of employment in car manufacture reached the level of 1929, although it was still far below the index for the early twenties.

Employment in locomotive manufacture, however, although responding to the expansion of 1934-37, did not increase to the same degree. By the middle of 1938, the employment indexes had again dropped to the 1933 low point. There was some improvement in the following 12 months, continuing to the end of 1939 in car manufacture. During 1940 there was substantial improvement in the employment indexes for both car and locomotive manufacture. In the first ten months of the year the employment index for locomotive manufacture ranged from 28 in April to 39.4 in October (1923-25=100), whereas in the corresponding period of 1939 the index had remained between 15.9 and 29.1. The index of employment in car manufacture was also substantially higher in 1940 than in 1939, standing at 56 in October as compared to 40.7 in the same month of the preceding year.

The effect of defense stimulation on these two industries has thus been marked. Nevertheless, in part because of continued diversion of freight from railroads to trucks, the number of freight cars loaded with less than carload lots (an indicator of trade activity) was below the 1939 level until December, 1940. Counterbalancing this downward movement, shipments of ore by rail during the summer of 1940 in connection with armament production greatly exceeded those of 1939, with corresponding favorable effects on the railroad industry. As shown in the following table, employment on Class I railroads was consistently higher in 1940 than in 1939 and showed gradual improvement from April through October. It did not, however, reach the levels of the first nine months of 1937.

INDEX OF RAILWAY EMPLOYMENT

(1923–25 = 100)

	1933	1939	1940
January	54.9	54.4	55.4
February	54.4	54.8	55.6
March	52.7	54.6	55.3
April	52.2	53.6	55.1
May	52.0	53.0	56.7
June	52.7	54.4	57.9
July	54.2	54.7	58.8
August	55.6	54.9	59.3
September	56.7	55.9	59.7
October	56.1	57.5	60.0
November	55.5	58.1	
December	55.2	56.5	

AGRICULTURAL EMPLOYMENT

The flow of labor to and from farm areas is affected by industrial activity in cities. Thus, from 1933 to 1935 there was a net gain in farm population; the trend was reversed in 1936 and 1937 when employment opportunities in urban areas increased, and in 1938 there was again some movement back to rural sections.

Over the 30-year period from 1909 to 1939, however, the outstanding characteristic of the agricultural labor market was the decline in the number of farm workers. Apart from the pull of an expanding industrial economy, that change accompanied technological improvements in farm production, requiring the use of less labor. Machines alone are expected to displace 350,000 to 500,000 additional farm workers in the next decade, according to the U. S. Department of Agriculture. Ordinary requirements in farm production for domestic and foreign markets can now be filled by about 1,600,000 fewer farm workers than in 1929. There is thus a surplus of farm labor in spite of the cityward trend.

In the face of restriction of demand for farm products owing to unemployment and low incomes in the cities and the retardation of the rate of population growth, the output per worker on farms has increased from 73 in 1909 to 110 in 1938 (1924-29=100), or about 50 per cent, according to the U. S. Bureau of Labor Statistics. At the same time, the index number of farm workers declined from 107.5 in 1909 to 104 in 1938. It is estimated that there were 12,209,000 family and hired workers engaged on farms in 1909, whereas in 1938, when total population had increased by 44 per cent, the number was 10,745,000.

Variations appear in the numbers of family workers (including relatives, operating owners, tenants and sharecroppers) and hired labor at different periods. From 1909 to 1929, the number of hired workers increased from 2,868,000 to 2,988,000 and the number of family workers declined from 9,341,000 to 8,305,000. With the beginning of the 1929 depression the trend was reversed, owing to the loss of city employment by relatives of farmers and the displacement of hired labor by machinery. An important development of recent years, operating to increase the proportion of family workers in the agricultural field and to decrease the output per worker, has been the growth of subsistence farming. The areas which now show the highest proportions of hired as compared to family labor are California and Florida, the eastern dairy region, and the range and northwestern areas.

Seasonality in farm employment also has a different incidence on family and hired labor, according to the Bureau of Labor Statistics. Seasonal fluctuations in employment of family labor on farms are not comparable to those in industry, since in the slack season farmers and their relatives work away from the farms or are at school, and their year's experience does not show "unemployment" in the customary sense. Seasonal variations in employment of hired labor, however, are not only more significant of unemployment, but are also more severe than those of family labor. Thus, January employment for hired labor is 30 per cent below the monthly average and July employment is 20 per cent higher, while family employment changes in the same months are 16 and 15 per cent respectively.

During 1940, American agriculture was adversely affected in some branches (cotton, tobacco, wheat) by the curtailment of export markets, but on the other hand production for domestic purposes was stimulated by the needs of the defense program. Although in June the annual average number of hired workers was 300,000 less than a decade ago, it was larger

FARM EMPLOYMENT

(Family and Hired Labor Combined)

	Thousands of Persons					
	1939			1940		
	July 1	Sept. 1	Oct. 1	July 1	Sept. 1	Oct. 1
UNITED STATES	12,215	11,659	11,886	12,037	11,352	11,735
New England	277	287	265	273	273	273
Middle Atlantic	728	644	625	709	657	621
East North Central	1,611	1,519	1,516	1,600	1,507	1,492
West North Central	1,905	1,835	1,745	1,911	1,788	1,773
South Atlantic	2,458	2,268	2,353	2,423	2,350	2,332
East South Central	2,027	1,944	2,124	1,912	1,750	2,073
West South Central	2,118	1,903	2,191	2,085	1,838	2,141
Mountain	501	518	493	537	509	462
Pacific	590	741	574	587	680	568

than five years ago. Wages of farm labor increased somewhat during the year.

The Agricultural Marketing Service of the Department of Agriculture publishes figures on the employment of family and hired workers. The foregoing table shows the total numbers employed in selected months in 1939 and 1940.

MIGRANT AGRICULTURAL WORKERS

Attention was focussed during the year on migrant farm laborers. According to the Department of Agriculture, there are from 1,000,000 to 3,000,000 such migrants during early summer and fall peak seasons. The number of migrants is increasing despite the underemployment of resident farm workers. Among them are both former farm operators (owners or tenants) and the industrially unemployed. Although they are reputed to "follow the crops," available data indicate that they are underemployed; a California study showed an average of 5.9 months of employment, with 93 per cent of the families earning less than $600 a year. Migration is mainly from south to north, workers in Florida moving northward along the Atlantic Coast to New York State (truck and fruit crops), others moving from Louisiana north to Michigan, some from the fruit and truck crops of southern Texas to the Panhandle for the cotton crop, and a large number from southern California into Washington. Migration among sugar beet laborers is declining, many of them becoming residents of the localities in which production is centered.

PUBLIC UTILITIES, TRADE, AND HOTELS

There were general improvements in this group of enterprises, which provide relatively stable employment, except for slight declines from the same months of the preceding year in employment on electric railroads and motor buses and in hotels. The table below is compiled from U. S. Bureau of Labor Statistics data on employment (1929=100).

PUBLIC EMPLOYMENT AND RELIEF WORK

The trend of Federal employment during 1940 was influenced by the growing impact of the defense program. Employment in the executive branch of the Federal Government increased from 936,689 in January, 1940 to 1,023,341 in July, and in October stood at 1,094,000, an increase of over 14 per cent from October, 1939. Employment in the military branch increased from 386,000 in October, 1939 to 733,000 in the same month of 1940. Changes in the numbers employed in the judicial and legislative branches were less striking, although the percentage increases were large. In October, 1940 there were about 3,000 employed in the judicial branch and 6,000 in the legislative. In July, 1940 the executive branch employed 138,000 persons within the District of Columbia and 885,000 outside the capital. The employment increases during the year were more marked outside than within the District of Columbia.

Employment on construction financed from regular Federal appropriations increased during the year,

	Per Cent Changes Over Same Month in 1939				
	January 1940	March 1940	May 1940	July 1940	September 1940
Telephone and Telegraph	+1.5	+1.9	+2.1	+3.2	+3.3
Power, Light and Gas	+1.8	+2.8	+2.7	+2.8	+2.8
Electric Railroads and Motorbus	(1)	−1.2	−0.8	−0.8	−1.2
Wholesale Trade	+2.5	+3.3	+1.7	+2.0	+0.7
Retail Trade	+3.4	+4.4	+2.7	+2.5	+2.5
Hotels	−0.4	−0.9	−0.6	−0.8	−0.3

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[1] Less than 1/10 of 1%.

reflecting by August the accelerated pace of the defense program. In September, there was a total of 397,000 employed on building construction, naval vessel construction, and airports, representing the following increases over the preceding year: building construction, 28,500; naval vessel construction, 13,000; airport construction, 10,000.

Employment on WPA financed projects, however, declined during the year. The high point on WPA-operated projects was reached in February when 2,249,912 were employed. In July, there were 1,583,242 employed, and by October there was a slight increase to 1,712,000. Employment on Federal agency projects financed from WPA funds ranged from 69,000 in September to 112,328 in July during the first ten months of the year. Students employed on the Student Aid Program of the NYA in January, 1940, numbered 455,000, an increase of 81,000 over January, 1939. In October there were 323,000 employed, a decline of 41,000 from the same month of the preceding year. Employment on the out-of-school work program of the NYA was provided for 322,000 students in January, 1940, an increase of 85,000 over the preceding year, and for 224,000 in October, a drop of 14,000 from October, 1939. Enlistments in the Civilian Conservation Corps declined from 337,000 in January, 1940 to 276,000 in July, and in October numbered 318,000. PWA employment, provided from earlier appropriations, has shown an uninterrupted decline since July, 1939, as the construction projects are completed, and now contributes a small share of total Federal employment. In October, there were 37,000 employed on projects financed from WPA funds.

The U. S. Bureau of Labor Statistics now provides estimates of the total number of employees in Federal, state, and local governments (including general government, public-service enterprises, public education, and military and naval personnel). In October, 1929, an estimated 3,384,000 were so employed; in October, 1940, the estimated total was 4,507,000, including military and naval forces.

UNEMPLOYMENT ESTIMATES

Estimates of unemployment in the United States indicate that by the fall of 1940 the defense program was beginning to have a perceptible effect in reducing the numbers unemployed. The table following shows the estimates of the American Federation of Labor and the National Industrial Conference Board (a research organization servicing employers). According to the latter organization, however, the downward trend was reversed in November when the total number of jobless increased to 7,217,000.

	American Federation of Labor Estimate (in thousands)	National Industrial Conference Board Estimate (in thousands)
March 1933......	15,653	15,939
March 1935......	12,608	11,929
March 1937......	9,367	7,415
March 1939......	10,902	9,800
September 1939..	9,439	8,192
March 1940......	10,301	9,304
September 1940..	8,544*	6,698*

* Preliminary.

The failure of the defense program to affect the unemployment load more favorably in 1940 was due, first, to the fact that actual employment in defense production lagged considerably behind the much-publicized defense awards, and, second, to the narrow field of occupations and skills which was benefited by defense operations. Thus, while labor shortages were gradually developing in certain highly skilled trades, thousands of workers remained unaffected by the expanding production. The training of the unemployed to meet defense demands became of paramount importance. Decisions made regarding production methods will be of crucial importance in adjusting defense demands to the labor supply available.

In November, 1940, the Bureau of Employment Security of the Social

Security Board reported a 12 per cent decline from September in the defense labor supply registered at public employment offices, with a total of 192,000 registered with primary skills in 500 occupations important to defense activities. At the end of October, the total number of persons registered for work at the public employment offices was 4,700,000.

Unemployment as reflected by unemployment insurance benefit payments was unexpectedly high in 1940. A record high was reached in June when the weekly average number of claimants receiving benefits was 1,300,000. In September the figure was 875,400. As indicators of unemployment, these figures are affected by the terms of the statutes, under many of which persons still unemployed are likely to have exhausted their unemployment insurance rights by the fall of the calendar year.

CHILD LABOR

By Courtenay Dinwiddie

General Secretary, National Child Labor Committee

THE FAIR LABOR STANDARDS ACT

During the two-year period from 1938 to 1940, the Children's Bureau of the U.S. Department of Labor, reported a total of 1,738 children employed in violation of the 16-year minimum age standard of the Wages and Hours Act. Although the act provides for legal action for its enforcement, either through injunction or criminal prosecution, the Bureau has regarded court action as a last resort. During the past two years 26 court actions, including seven criminal and 19 civil suits for flagrant child labor violations were brought to a close. In none of these cases did the employer contest the case.

Certificates of age have now been made available in 46 states, Hawaii, Puerto Rico, and the District of Columbia. Plans are nearly complete for issuance of Federal certificates of age in Alaska. The setting up of an acceptable certification program in the two remaining states, Nevada and Louisiana, is now in the negotiation stage.

Inspectors also found a total of 87 minors under 18 employed in violation of the hazardous-occupation prohibitions established by the Chief of the Children's Bureau. These hazardous occupations include occupations in or about plants manufacturing explosives or articles containing explosive components, employment as motor-vehicle drivers or helpers, and occupations in or about coal mines. Investigations of other occupations in which employment may be declared to be hazardous for minors under 18 are now in progress in the fields of shipbuilding, logging and sawmill operations and the operation of wood-working machines. During the fiscal year ended June 30, 1940, the Industrial Division of the Bureau inspected 1,298 establishments in 34 states, and the District of Columbia, having approximately 235,000 employees. Reinvestigations were made of 223 establishments. One hundred and one explosive plants were visited in 16 states.

Administration of the child labor provisions of the Fair Labor Standards Act has been based upon an educational program. Prosecutions have been made largely with the purpose of preventing further violations of the law. Because of the act's provision for certification as to age, many thousands of children have been prevented from going to work, and because of the excellent cooperation received from state and local authorities, an increasing number of these children have remained in school.

Another important phase of the entire program is the work of the consultants of the Industrial Division of the Bureau in helping the states to solve their own child labor problems. In two years a total of 2,169 State and local visits have been made by these consultants.

Entirely excluded from national regulation even yet are all children employed in industries which are intrastate in character. Large numbers of boys and girls under 16 are in personal service trades, at work in laundries, hotels, restaurants, beauty parlors, and filling stations. Many serve as clerks or messengers. Their hours are usually long and their wages low. This fact is even more serious than at first it appears, since the fields in which children are today in greatest demand are those which do not come under Federal law. The Fair Labor Standards Act does not begin to deal with child labor as a mass problem. It touches at best 25 per cent of the minors employed when the act went into effect.

FEDERAL LEGISLATION

The House Committee on Merchant Marines and Fisheries held hearings on a bill, H.R. 7527, making effective the draft convention of the International Labor Office relating to the minimum age which had been ratified by the United States Senate. No action was taken by Congress on this bill.

A bill to revise the District of Columbia Child Labor Law to permit the employment of children in theatrical productions was introduced again in 1940. At present, by virtue of the night work provisions of the child labor law, no minor under 18 may appear on the stage. No action was taken on this bill. It is still on the calender.

Two amendments to the 1937 Sugar Act were proposed, based on its application during three years of operation. According to the act an entire year's subsidy, sometimes amounting to $750,000, would be withheld from employers who had employed children under 14, or children from 14 to 16 for more than eight hours a day. The first amendment proposed, S 3237, would have rendered entirely ineffectual the enforcement of the child labor provisions of the act. The second, S 3236, which was ultimately passed, provided for a reduction in the benefit payments of $10 per day for each child illegally employed during the crop seasons of 1937, 1938, and 1939. The penalty would remain as in the original act in 1940, when growers would have time to familiarize themselves with methods of providing against illegal employment. In addition to the legislation on this subject, conferences were held between representatives of the Children's Bureau and the Department of Agriculture, with a view to a better enforcement through the issuance of certificates during the 1940 season.

The Barden Bill, among other provisions, sought to empower the administrator of the Fair Labor Standards Act to permit industrial homework at lower wages than those applying to industry. Since this would inevitably mean an increase in homework, and child labor is an inevitable accompaniment of homework, this bill was vigorously opposed. The bill failed to pass the House and did not come before the Senate.

CHILD LABOR AND THE MIGRANT WORKER

A bill presented by Congressman Voorhees attempted to obtain relief for migrant farmers through the Social Security Act. Very wide interest was taken in this bill throughout the country, particularly in its relation to child labor, but it was not given serious consideration by the House.

In June the Federal Children's Bureau called to the attention of the LaFollette Civil Liberties Committee certain aspects of migratory agricultural work which affect the welfare of children. It presented factual data as to the number and ages of children engaged in industrialized agriculture, working conditions, hours, wages, health hazards and the effect of agricultural employment upon schooling. A discussion of legislative regulation of child labor in agriculture through child labor and school attendance laws was included, with a table listing by states exemptions from compulsory attendance provisions for farm work, poverty and other causes. In order to study these problems, the House created the Tolan Committee, with an appropriation of $20,000 to investigate the Interstate Migration of Destitute Citizens.

STATE LEGISLATION

New Jersey.—The outstanding advance in state child labor legislation has been the passage by New Jersey of new laws relating to child labor and school attendance. For 35 years families have been brought in from other states, notably Pennsylvania, to work in cranberry bogs and on truck farms. Miserable conditions of housing, excessive work, low pay, and absence from school have been the rule. The law in general raises the age at which children may leave school for work to 16, includes stricter control of night work and of permit provisions, and makes illegal the work of non-resident children when the schools of the district in which they are living are in session or when the law of the state of residence would require their attendance at school.

New York.—A law was enacted prohibiting the operation of auto trucks while more than one-third of the occupants are standing and unless suitable seats and sideracks are provided and the tail board is securely closed. Unfortunately the act covers only trucks carrying 20 or more persons and operated for more than 10 miles. Statistics show that during the past three years five workers have been killed and 44 injured in accidents involving trucks carrying workers to and from farms. Both New York and New Jersey strengthened the provisions of their industrial homework laws.

Virginia strengthened the administrative provisions of its school attendance law but unfortunately did not raise the upper age limit for compulsory school attendance from 15 to 16 years as originally proposed.

Defeated Bills.—In spite of these noteworthy forward steps, many good bills were defeated, including resolutions for ratification of the Child Labor Amendment in Louisiana, New York, Rhode Island, and South Carolina. Other bills lost included a 16-year minimum age bill in Virginia, and revisions of the Child Labor laws in Louisiana and Alabama, a bill creating a Department of Labor and establishing workmen's compensation in Mississippi, and several bills in Rhode Island, extending certificate requirements and strengthening provisions regarding hazardous occupations and hours. Several attempts to lower standards were defeated, notably bills to weaken the minimum wage law in Kentucky, hours legislation in Louisiana, and night work standards in New York. New York also killed a bill permitting continuation school classes to be held in the evening.

CHILD LABOR INVESTIGATIONS

Because of the lack of uniformity in the laws regulating the appearance of children on the stage, the National Child Labor Committee began, in March 1940, a study of such children on the legitimate stage. There has always been extreme variation among the state laws as to the type of such employment covered, the age and conditions under which the work is permitted, and the status of children in travelling performances. In some localities, notably the District of Columbia, the night work provisions of the child labor law prevent the stage appearance of minors under 18 years, while at the other extreme are a few states with no restrictions whatsoever. The study has been based upon an examination of permits issued by the Mayor's office in New York City, between September 1925 and June 1940, and upon an intensive investigation of 65 children who have recently engaged in theatre employment. Interviews were held with the children and their parents and with adults who had been child actors, as well as with producers, stage managers, and playwrights. Group intelligence and achievement tests were given to 34 of the 65 children interviewed.

An Advisory Committee, including representatives of both child welfare and theatre interests, formulated the recommendations included in the report. The Advisory Committee is of the opinion that children can safely start work on the legitimate stage at five, six, or seven years providing other specified standards are enforced. These deal with the limitation of rehearsal hours, the requirement of regular medical examinations and restricting additional employment such as in radio, motion pictures, and commercial photography, while children are in a play. Other recommendations deal with work permits, schooling, the possibility of alternating children in a cast, and the need for uniformity in legislation.

In a 1940 publication entitled "Young Workers and Their Jobs in 1936," the Children's Bureau issued a survey of 2,019 employed minors under 18 years in six states—Massachusetts, New Hampshire, Indiana, Missouri, Alabama, and Georgia. In all but two of the six states child labor laws forbid the employment of children under 16 for more than 48 hours a week. Yet of the 450 children under 16 years 23 per cent worked 60 hours or more. The percentage ranged from 40 per cent in the South to 16 per cent in the Middle West and 8 per cent in New England. Daily and weekly hours for 16 and 17 year-old children showed a smaller percentage with long hours, probably due to the fact that many in this group were in manufacturing industries where hours are more likely to be limited.

CONFERENCES

Migrant Problem.—In Baltimore on Feb. 12-13, representatives from Maryland, Virginia, New Jersey, and Delaware met with certain Federal Departments and a few private groups especially concerned to confer about the migrant problem. Housing, child labor, employment practices, and wages were discussed in their relation to transient labor. A start was made toward agreement upon minimum standards by which states should measure their responsibility toward such workers. The need for Federal and state cooperation was stressed. The Secretary of Labor is planning to offer the Department's aid in extending this type of conference to other regions of the country.

The White House Conference on Children in Democracy, held Jan. 18-21, 1940, was the fourth conference on children's needs to be called by a President of the United States. In general the child labor recommendations were in the nature of a reaffirmation of the standards adopted by the White House Conference of 1930. They called for a minimum age of 16 years for employment, with light work (not in mining or manufacture) permitted after school hours and during the vacation period at 14 years; a minimum age of at least 18 years for employment in hazardous occupations; restriction of hours and night work up to 18 years; double compensation for minors injured while illegally employed; minimum wage standards; abolition of industrial home work; and compulsory schooling for every child up to the age of 16. The problem of unemployed youth was considered in detail, with recommendations for revision and modernization of secondary education programs, and for extension of vocational schools, as well as of vocational guidance and counselling. Placement service for the young and expansion of public works programs for youths over 16 who are not in school and are unable to find employment, were also endorsed.

National Conference of Social Work.—On May 31, the National Child Labor Committee held a luncheon in connection with the National Conference at which the subject of discussion was "Child Labor in Industrial Agriculture." Again the questions of migrant workers and of farm rehabilitation were stressed as the most crying needs for those interested in child labor and social reform.

THE CHILD LABOR AMENDMENT

The Child Labor Amendment, pending since 1924, is still open for ratification. To date it has been ratified by 28 states. In 1941 a majority of the state legislatures will again be in session, with only eight additional states needed for ratification.

NEW PUBLICATIONS

National Child Labor Committee
- *The American Child* (published monthly except during the summer).
- *The Federal Child Labor Amendment—1940.*
- *Child Labor Facts* by Gertrude Folks Zimand.
- *State Child Labor Legislation, 1940,* by Gertrude Folks Zimand.
- *Annual Report for the Year Ending September 30, 1940,* by Courtenay Dinwiddie.
- *Children in the Theatre* (in preparation), by Anne Hood Harken.
- *Children in Strawberries* by Raymond G. Fuller.

White Conference on Children in a Democracy
- Chapter on "Child Labor and Youth Employment" in *Preliminary Statements Submitted to the White House Conference.*

United States Department of Labor Division of Labor Standards
- *Proceedings of the Interstate Conference on Migratory Labor.*

Children's Bureau
- *Young Workers and Their Jobs in 1936.*
- *Child Labor in Agriculture:* Statement by Beatrice McConnell submitted to a Subcommittee of the Committee on Education and Labor, U.S. Senate, May 27, 1940.
- *The Child* (published monthly).

New York Child Labor Committee
- *Factories in the Field Lure the Barefoot Boy.*

The American Academy of Political and Social Science
- *The Annals* for November, 1940.
  - "Four Milestones of Progress," by Homer Folks.
  - "Child Labor—Continued," by Raymond G. Fuller.
  - "Child Welfare 1930-40," by Katharine F. Lenroot.

PERIODICAL PUBLICATIONS

American Child
419 Fourth Ave., New York City.

American Federationist
American Federation of Labor, Washington, D.C.

American Labor Legislation Review
131 East 23d Street, New York City.

American Labor World
66 Duane Street, New York City.

Child (The)
Children's Bureau, Department of Labor, Washington, D.C.

Labor Digest
1472 Broadway, New York City.

New Masses
461 Fourth Ave., New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Assn. for Labor Legislation, 131 E. 23rd St., New York City.

American Federation of Labor, A. F. of L. Building, 9th and Massachusetts Ave., N.W., Washington, D.C.

American Federation of Musicians, 1450 Broadway, New York City.

Congress of Industrial Organizations, 1106 Connecticut Ave., N.W., Washington, D.C.

International Assn. of Garment Manufacturers, 260 Broadway, New York City.

International Assn. of Machinists, Machinists Bldg., Washington, D.C.

International Longshoremen's Assn., 265 W. 14th St., New York City.

International Seamen's Union of America, 666 Lake Shore Drive, Chicago, Ill.

Junior Order of United American Mechanics, 3029 N. Broad St., Philadelphia, Pa.

League for Industrial Democracy, 112 E. 19th St., New York City.

Marine Engineer's Assn., 227 Fulton St., New York City.

National Assn. of Letter Carriers, A. F. of L. Bldg., 9th and Massachusetts Ave., N.W., Washington, D.C.

National Civic Federation, 45 East 34th St., New York City.

National Federation of Post Office Clerks, A. F. of L. Bldg., 9th and Massachusetts Ave., N.W., Washington, D.C.

National Industrial Conference Board, 247 Park Ave., New York City.

National Industrial Council, 14 W. 49th St., New York City.

Pilot's Association, 119 Broad St., New York City.

United Licensed Officers, 15 Whitehall St., New York City.

DIVISION XVII

RELIGION AND RELIGIOUS ORGANIZATIONS

PROTESTANT DENOMINATIONAL ACTIVITIES

By Benson Y. Landis

The Federal Council of the Churches of Christ in America

THE WORLD CRISIS

The Protestant churches, like other religious bodies, again found in 1940 that, in a time of war, the institutions of religion function with much greater difficulty than in peace. The international situation probably overshadowed all activities of the churches. The activities and declarations indicated generally that the Protestant churches were officially neither absolute pacifist nor interventionist. Rather, the general emphasis was on middle positions. The Protestant churches urged an international ministry of reconciliation. They asked for a renewed search for the basis of a durable peace and of a stable world order. The Protestant churches also presented much evidence that the ecumenical, or world wide, or universal, idea of the churches was a reality even in time of war. There was much determination that fellowship among Christians should be maintained even across the lines of battle. From Europe came reports that valiant efforts were being made by churchmen to prevent the churches of England from being used as instruments of national policy to the same extent as in the first World War.

"Orphaned missions," separated from German, Belgian, Danish, Dutch, and French support by the war, were assisted by special funds raised in American churches by the International Missionary Council. Over 100 such missions were aided. British churches in England and South Africa both safeguarded and aided the missions of the churches of nations with which they are at war. This was testimony that the church is a vital, international fellowship. Church constituencies also contributed extensively to work among prisoners of war and refugees. Methodist and Episcopal churches began efforts to raise large special relief funds for their coreligionists in England, and Lutheran bodies for theirs in Finland. Denominational efforts for relief abroad were coordinated during the year by the Joint Committee on Foreign Relief Appeals, established by the Federal Council of the Churches of Christ in America and the Foreign Missions Conference of North America. These activities gave point to the report of a group of distinguished churchmen on "The State of the Church" to the Federal Council's biennial meeting at Atlantic City in December, 1940, that the church remains the "least shaken" of all our major institutions by war, social upheaval, and revolution throughout the world.

THE CONSCIENTIOUS OBJECTOR

Unofficial estimates indicated that only one per cent of the young men selected for compulsory military training described themselves as conscientious objectors. During the registration of men of draft age in October, 1940, the number of persons who refused to comply was negligible. The historic peace churches that took an absolute pacifist position, notably the Friends, the Mennonites, and the Church of the Brethren, all advised their members to register on the theory that this step simply involved the furnishing of information to the Government. The real tests and difficulties were still to come, apparently, when the draft boards began calling men. A religious conscientious objector, under the law, may be given the choice of accepting non-combatant military service. Declining that, he may be assigned to work of national importance under civilian direction. Preliminary reports indicated that the young men drafted, who were conscientious objectors, generally would be willing and ready to accept employment in soil conservation. Numerous Protestant churches affirmed the right of conscientious objection, and certain of them made provision to register those of their members so declaring themselves.

THE MYRON TAYLOR APPOINTMENT TO THE VATICAN

According to Religious News Service, at least 30 Protestant denominations, or synods or conferences or groups within denominations, either formally protested the appointment by President Roosevelt of Myron C. Taylor, prominent Episcopal layman, as his personal representative at the Vatican, or asked for his recall. This appointment was announced by President Roosevelt on Dec. 24, 1939, for the purpose of aiding peace efforts in Europe. Among Protestant officials, considerably more disapproval than approval seemed evident. The *Christian Century,* Chicago, probably the most influential Protestant journal, unequivocally opposed the appointment. The Executive Committee of the Federal Council, representing 22 bodies, approved the appointment only if temporary and special, for the purpose of assisting peace moves. Mr. Taylor returned to the United States in the fall of 1940, and no public announcement of his mission was made. President Roosevelt stated that the appointment was only temporary. The public discussion over this procedure revealed extensive and deep-seated interest in the church-state issue on the part of Protestant leaders who were zealous to maintain the separation of Church and State. However, the discussion also left its scars. It adversely affected the efforts toward inter-faith amity that had been widely attempted in the United States during 15 previous years.

SOCIAL SECURITY ISSUE

The church-state issue also came to prominence in connection with proposals to extend the provisions of the Federal Social Security Act of 1935, amended in 1939, to the employees of churches as well as of other non-profit social agencies, hospitals, schools, and colleges, who had obtained exemption. The proposals of 1940 were mainly concerned with coverage of church lay employees by the old age and survivors insurance plans, rather than unemployment insurance. Continued exemption of clergy and members of religious orders was provided for in bills introduced in 1940 for extension of the social security laws. A few leaders and agencies, notably the National Council of the Protestant Episcopal Church, speaking only for itself and not for the church, favored the inclusion of lay employees. General sentiment appeared to remain unchanged, however, and gave rise to remarks that the churches, judging by their pronouncements, were for social security for everyone but their own employees. Only a small proportion of lay employees of churches were covered by the pension plans of the denominations themselves, and a study published in the *Information Service* of the Federal Council also indicated that less than a majority of the Protestant clergy were covered by the pension agencies.

CENSUS OF RELIGIOUS BODIES

The incomplete Federal Census of Religious Bodies for 1936, released in August 1940, revealed that many thousands of ministers and clerks of local churches had failed to respond to three or four requests for membership and financial data of the same type as the Bureau of the Census had successfully obtained in 1906, 1916, and 1926. (The 1926 reports were widely regarded as the most complete reporting ever achieved.) The August, 1940 release of the Bureau of the Census showed 256 religious bodies with 199,302 local churches having 55,807,366 members, as compared with 213 bodies and 232,154 local churches with 54,576,346 members in 1926. In June, 1936, the *Christian Herald* published a compilation of the reports of official statisticians of 208 religious bodies with 245,005 local churches having 62,678,177 members. It would appear that possibly 45,000 local churches did not report, and of these more than 20,000 were in three denominations: Southern Baptist Convention, Methodist Episcopal Church, and Methodist Episcopal Church, South. The census was taken under authority of acts of Congress signed by President Theodore Roosevelt and President Herbert Hoover. However, there was much misunderstanding of the effort. Rumors were circulated by churchmen and among churchmen that the census was "just a New Deal proposition," that it was an attempt of the state to "invade" the church, that it was an unwarranted interference of the State in the life of the Church, etc.

CHURCH STATISTICS

The most recently published compilation of the reports of the statisticians of religious bodies, usually for the ecclesiastical year ended between Jan. 1 and Oct. 1, 1939, was that made by Henry Barraclough, secretary of the Association of Statisticians of Religious Bodies, and published by him in the *Presbyterian,* Philadelphia, for Dec. 12, 1940. The totals were for 203 religious bodies having 249,638 local churches and 64,785,526 members.

RELIGION IN SCHOOLS

Everywhere one heard of new efforts to have religion more widely taught in public schools. The U. S. Office of Education announced a study to find out what was happening and also to try to explain the variety of plans under way. During recent years vacation Bible schools have been rapidly increasing in number among Protestant churches. In addition, week-day religious instruction in cooperation with public schools was being widely extended. This is being attempted in two ways. First, pupils are released from school time for religious study, usually an hour a week. Second, there are efforts looking toward an emphasis upon religion in connection with the teaching of all or most school subjects.

SOCIAL PRONOUNCEMENTS

The general public impression created by the activities of the Protestant churches in 1940 was conservative. A noticeable number of ministers in large city pulpits, sometimes called the more wealthy churches, declared against a third term for President Roosevelt. Public support for the President and his social program among social liberals in the ministry was less marked in 1940 than in 1936. This was probably due to the fact that a number of the liberal ministers are also absolute pacifists or near pacifists, and religious pacifists generally sensed a difference between President Roosevelt and Wendell L. Willkie on the war issue. The religious pacifist vote is believed to have gone largely to Norman Thomas, Socialist candidate, because of his stand against conscription, and to Mr. Willkie. The social pronouncements of the churches in 1940 hardly resembled those of 1932 and 1933, when venturesomeness was more popular. The indifference of Protestant officialdom to the social program of the Roosevelt Administration was often remarked by informed persons. The usual explanation is that the churches declare social ideals, but either do not dare to implement them or are actually incompetent to do so. In a campaign year, the Protestant churches for the most part pursued a course of political neutrality, a position that is vigorously defended. It is held by most churchmen that the church must be a continuing agency above political passions.

BUSINESS-RELIGION RELATIONS

The National Association of Manufacturers, New York, as a part of its public relations program, employed a Protestant minister and conducted several intensive conferences with Protestant churchmen in various cities. (A conference with Roman Catholic churchmen was also held.) These conferences were for the purpose of exchanging views, and were a part of the program of the Association to maintain systematic contacts with various groups, such as farmers, women's organizations, etc. The business community at least took increasing notice of the world of religion. There were indications that a rapprochement was in the offing.

INDICATIONS OF A RETURN TO RELIGION

One could hear from Halford E. Luccock of the Yale Divinity School, in his *American Mirror,* a review of the literature of the nation for 1930-40, that there was no noticeable turning toward religion on the part of the people. There was also contrary evidence. There were those who saw many of the secular world, in their despair and desperation, giving renewed attention to spiritual values and to the usefulness of churches as institutions. The church was an institution with a high opinion of man, one reporter contended, in the midst of current depression about man. Others referred to the values of a continuing institution in a time of chaos, to the healing qualities of religion for disturbed minds, to the social fellowship that the church offers to all ages and sexes and classes. It was sometimes held that the secular world was turning as a last resort to a religion of last resort. ("The Devil was sick—the Devil a monk would be. . . .") The secular world was trying, one heard, to make use of religion to "save its own hide and property," after all else had failed to save them. Or, that the secular world was simply using religion as a means to gain "short-term, secular ends." A complete explanation could hardly be given, but there were certainly marked evidences of the reinstatement of the fundamental realities of religion among the great values of the times.

PROTESTANT EPISCOPAL CHURCH

The Triennial General Convention met in Kansas City in October. The most extensively debated issue before the Convention was the suggested amendment to the canon on marriage and divorce presented by a special commission which had studied the question for 15 years. The proposed canon attempted unsuccessfully to reconcile two points of view in regard to Christian marriage. On the one hand, it asserted that Christian marriage was indissoluble, and that no clergyman might admit to the contrary by marrying any divorced person. Such remarriage was declared to be a violation of a law of God as interpreted by Jesus. Any divorced person remarried must be excommunicated, according to the proposed amendment. On the other hand, in certain exceptional cases remarriage of a divorced person might, with the approval of ecclesiastical authority, be blessed and the person restored to the communion of the church. The proposed amendment, even though it passed the House of Bishops, was rejected by the House of Deputies. The canon now in effect prohibits the marriage of a divorced person, with the exception that the rule does not apply to the innocent party in a divorce for adultery, provided that before the application for such remarriage a period of not less than one year shall have elapsed after the granting of a divorce, and that satisfactory evidence touching the facts in the case be laid before the ecclesiastical authority. Any minister may decline to solemnize any such remarriage. A new commission for further study of the matter of divorce was authorized.

The much discussed suggested concordat with the Presbyterian Church in the U.S.A. was not brought before the Convention for action. This concordat would have permitted ministers of either church under an identical form of authorization to have performed their offices and have charge of congregations in the other. It is believed that the concordat was not presented both because of widespread opposition, mainly from Anglo-Catholics, and because of a desire on the part of Episcopal leaders to obtain the advice of the Lambeth Conference of Anglican Bishops from all parts of the world, which conference has been indefinitely postponed on account of the war.

The Convention authorized an effort to raise a special fund of $300,000 for the support of foreign missions of the Church of England. The National Cathedral at Washington, D.C. was designated as the seat of the presiding bishop, but this was not interpreted as determining his residence, or meaning any change in the offices of the National Council of the Church from 281 Fourth Avenue, New York.

After debating the question for 20 years, the Convention voted to join the Federal Council of the Churches of Christ in America. Previously the National Council of the Church had cooperated in a limited way with certain departments of the Federal Council. Episcopal representatives actively participated in the biennial meeting of the Federal Council in Atlantic City in December.

Among actions on relationships with other churches were one giving complete recognition to the ministry of the Old Catholic Churches, and another continuing conversations regarding reunion with the Reformed Episcopal Church. The latest statistics for the year ended Dec. 31, 1939, showed a membership of 1,996,434 in 7,074 churches.

UNITED LUTHERAN CHURCH

The Biennial Convention of the United Lutheran Church was held in Omaha in October. The Convention reiterated the doctrine of "just war" and declared the duty of Christians to bear arms. It also affirmed the ultimate authority of individual conscience, and provided a set of measures for the protection of the rights of its members who are conscientious objectors to military service. The recently established Board of Social Missions reaffirmed previous declarations of the church that it is in agreement with Scripture that the churches should occupy themselves with civic and social matters and set forth in detail certain emergency responsibilities of the church in time of social stress and international crisis. The Convention authorized participation of the United Lutheran Church in an all-Lutheran conference on forms of worship. It considered a merger of the Boards of Social Missions and of Deaconess work. It approved a declaration of unity drafted by negotiators with other major Lutheran bodies, centering mainly upon the doctrine of the Scriptures, adding that this was not to be regarded as any modification of the historic statements of the United Lutheran Church. It continued cooperation with other Lutheran bodies in a home missions council involving cooperation in mission fields; for example, in Canada, Texas and Negro groups; also in certain designated foreign missions. It defined the character of its official publications.

The Convention denounced the appointment by President Roosevelt of Myron C. Taylor as his personal representative at the Vatican, as a violation of the principle of the separation of Church and State. It deplored the persecution of German speaking congregations in Canada, as a result of hysteria and war prejudice, and declared that this persecution had gone on in spite of the fact that most of the members of these churches were not German in nationality. The church reported for the year ended December 31, 1939, 1,611,778 members in 3,750 local churches.

AMERICAN LUTHERAN CHURCH

The American Lutheran Church held its tenth anniversary Convention in Detroit in October. Relationships with other Lutheran bodies were prominent in the discussions. The delegates expressed a desire to continue negotiations with the United Lutheran Church and the Evangelical Lutheran Synod of Missouri, Ohio, and other states. On the other hand, there was evinced a determination not to move too quickly into important decisions involving closer relationship with these two other Lutheran bodies. Observers noted strong feeling against organic union. One interpretation was: "The American Lutheran Church is working for unity instead of union. She wants to establish pulpit and altar fellowship when the time is ripe and she desires to cooperate in as many projects as possible, particularly missions, education and charity." The church reported for the year ended December 31, 1939, 560,940 members in 2,028 churches.

METHODIST CHURCH

The first session of the quadrennial General Conference of the newly formed Methodist Church was held at Atlantic City in May. The Methodist Church, having over 7,500,000 members, is a merger of the Methodist Episcopal Church, the Methodist Episcopal Church, South, and the Methodist Protestant Church. The uniting conference of the three bodies was held a year earlier. Between the uniting conference and the quadrennial General Conference the new church had conducted an extensive "united advance" designed to launch the church strongly in the common program. It was reported that 2,000,000 members had attended these meetings and that at no time since union had any differences of opinion followed the lines of the previous separate churches. The chief actions of the General Conference were to complete the unification of the various boards and agencies of the church. A single official periodical was decided upon, and Rev. Roy L. Smith of the First Methodist Church of Los Angeles, well-known writer of syndicated religious material, was elected editor of the *National Advocate* which began publication in 1941 with headquarters in Chicago.

Ordained women were denied the right of membership in annual conferences, which substantially deprives them of standing in the ministry. Educational requirements for entering the ministry were raised. The General Conference denounced war as an evil but maintained the right of individual conscience as to participation in it. An effort to withdraw support from the military chaplaincy was defeated. It was voted to ask President Roosevelt to recall Myron C. Taylor as his personal representative at the Vatican. The General Conference decided that the term consecration rather than ordination should be used for the recognition of new bishops by the entire church in order to make it clear that bishops do not constitute a different order of ministry from other preachers.

Following the General Conference the six jurisdictional conferences, representing a decentralization of ecclesiastical authority, were held in their respective regions. Transfer to these bodies of the authority to elect members of the boards and agencies of the church and the bishops thus removed from the General Conference some of its most characteristic business, as well as spirited contests.

Following the jurisdictional conferences the Commission on Evangelism, consisting of six bishops, 11 ministers, 17 laymen, six youth members, launched plans for a spiritual crusade designed to restore the church's early "passion for souls."

PRESBYTERIAN CHURCH IN THE U.S.A.

The General Assembly of this Church convened in Rochester, N.Y. in June. William L. Young, president of Park College in Missouri, was elected the moderator. A resolution declared the sinfulness of war, but the Assembly refused to amend its constitutional reference to a "just war," apparently on the theory that the question could not be considered calmly in the present international situation. The Board of Christian Education was asked to make a basic study of the church and war. The Assembly made provision for the registration of members who are conscientious objectors, and also asserted the right of conscientious objection to military service. In a thorough resolution the Assembly discussed President Roosevelt's appointment of Myron C. Taylor as his personal representative at the Vatican, and called for its termination on the ground that it was unconstitutional.

A report was made that the Board of Christian Education had been successful in raising a special fund of $8,000,000 of a goal of $10,000,000 set, for the strengthening of denominational schools and colleges. A study of the possibility of reducing the number of theological seminaries was authorized. A desire for organic union with the Presbyterian Church in the U.S., popularly known as the Southern Presbyterian Church, was reaffirmed. The Assembly took no new action relating to current negotiations for union with the Protestant Episcopal Church, but it declared that it regarded Presbyterian ordination as fully valid and that persons received into the membership of the Presbyterian Church were also received into the "Holy Catholic Church." The Assembly passed a strong resolution condemning Anti-Semitism. The latest available statistics for this body for the year ended March 31, 1940, showed a membership in the United States of 1,971,364 in 8,619 churches.

PRESBYTERIAN CHURCH IN THE U.S.

The General Assembly of this Church was in session in Chattanooga, Tenn. in May. The Assembly refused to take formal action in regard to the appointment of Myron C. Taylor as the personal representative of President Roosevelt at the Vatican, even though there was strong opinion that a formal pronouncement should be made. In the discussion of relationships with other bodies the Assembly voted to continue negotiations for union with all branches of the Presbyterian Church. However, the Assembly made less specific than previously its authorization to a committee for negotiations with the Presbyterian Church in the U.S.A. The latest statistics for this body for the year ended March 31, 1940 indicate a membership in the continental United States of 532,135 in 3,487 churches.

UNITED PRESBYTERIAN CHURCH

The General Assembly of this Church met in Buffalo, N.Y. in May. This body, unlike most denominations meeting during the summer, refused to take any formal action in support of its members who are conscientious objectors to military service. The Assembly's Committee on Church Relationships was authorized to confer with any other churches desiring to negotiate for union. This action was generally understood to mean the reopening of the question of union with the Presbyterian Church in the U.S.A., which the United Presbyterian Church had voted down in 1936. The latest statistics for this body for the year ended March 31, 1940, show a total membership in continental United States of 187,470 in 853 churches.

DISCIPLES OF CHRIST

No session of the International Convention of this body was held in 1940. The last session was held at Richmond, Va. in October, 1939. The next session will meet in St. Louis in May, 1941. This denomination is engaged in a five-year program of advance to strengthen the church. The special effort began in 1937. The moderator is Rev. H. B. McCormick, minister of the Lakewood Church, Cleveland, O. There is a Commission "to restudy the Disciples," which made a progress report at Richmond in 1939 and is continuing its work.

The Board of the United Christian Missionary Society, Indianapolis, together with influential publications of the churches, have voiced current convictions on numerous issues. For example, the *Christian Evangelist* offered a view on the Myron C. Taylor appointment to the Vatican which was in strong contrast to the sentiments of many Protestant religious journals —it offered a qualified defense of the Taylor appointment and requested that it be not criticised. The *Christian Evangelist* criticised the decision of the Supreme Court upholding the right of local school boards to expel members of Jehovah's Witnesses for failure to salute the flag, declaring the opinion to be prejudicial to civil and religious liberty. Officials of the church set up machinery for the registration of conscientious objectors, authorized by the 1939 Convention. The third annual unofficial conference of representatives of the Disciples and the Churches of Christ, looking toward the union of the two bodies, was held in Lexington, Ky. Informal preliminary conversations were again held among members of the Disciples and of the Northern Baptist Convention. An unofficial committee to consider the joint publication of a hymn book with the Northern Baptist Convention was constituted.

The United Christian Missionary Society extended aid to the British Society in support of their missions. The School of Religion of Butler University, a theological seminary of the denomination, began the publication of the *Shane Review* as a journal of Christian scholarship. During the fall of 1940 an important series of "brotherhood conferences" was begun designed to reach all the important regions of the country having Disciples as members. For the year ended June 30, 1940 the Disciples reported a membership of 1,658,966 persons in 7,974 churches.

CONGREGATIONAL CHRISTIAN CHURCHES

The Biennial General Council of this denomination met in Berkeley, Calif. in August and elected former Governor William E. Sweet of Colorado as moderator. The meeting marked the end of the first decade of union between the Congregational and Christian Churches. The names of both have been carried as the title of the church. The 1940 Council marked the completion and permanence of this union by changing its name so that it will read simply, "The General Council of Congregational Christian Churches." Among its actions the Council passed a resolution asking for early termination of the Taylor appointment to the Vatican; it asked for civilian control of conscientious objectors to the Selective Service Act; it called for the cooperation of all religious faiths against forces undermining democracy, religious freedom, and the American way of life; it particularly denounced religious bigotry. The Council tabled a resolution which would have called upon the country for "deepened searching debate and mature deliberation" before the adoption of military conscription in the nation. The Council took a novel action on interchurch relations by amending its constitution so as to provide for a class of ecumenical members to be appointed two each by their denominations, primarily those affiliated with the Federal Council, but including also the Unitarian and Universalist churches. The latest official statistics for the year ended Dec. 31, 1939 show 1,049,575 members in 6,041 churches.

NORTHERN BAPTIST CONVENTION

Meeting in Atlantic City in May, the most significant actions of the Convention related to issues of war and peace. It condemned war as a method of settling international disputes and the invasion of helpless countries by totalitarian powers, and extended sympathy to the democracies of the world. It warned the public against hysteria and propaganda, and urged a careful scrutiny of news reports, domestic and foreign. The Convention provided for registry of members of the denomination who are conscientious objectors to participation in war, and protection of their rights. It asked for a reconsideration by the President of his appointment of Myron C. Taylor as his personal representative to the Vatican. An independent Baptist pacifist organization was formed by persons attending the Convention. Ernest J. Millington, a layman of Cadillac, Mich., was elected president of the Convention. The latest report of membership of Northern Baptist churches in the United States (1939-40) is 1,549,012 in 7,526 churches.

SOUTHERN BAPTIST CONVENTION

The Southern Baptist Convention met at Baltimore, Md., in June, and elected William W. Hamilton of New Orleans to succeed L. R. Scarborough of Fort Worth, Tex. The Convention protested President Roosevelt's appointment of Myron C. Taylor of New York as his personal representative at the Vatican. It voted to continue the special emphasis on evangelism carried out the previous two years. Southern Baptist colleges reported the largest enrollment in their history—34,462. A total of 1,646 men and women were reported to be in training for the ministry, missionary work, and religious education. The social service commission reported renewed efforts for temperance and recorded great satisfaction over the decline in the number of reported lynchings of Negroes. The Convention declared that discriminations against Negroes in the administration of justice, in pursuits of industry, and in education must be removed. It recognized the right of the individual to conscientious objection to military service. The Convention declined the invitation previously extended to membership in the World Council of Churches. A small minority of the members were in favor of accepting membership as an expression of fellowship with other religious bodies. The Convention commended the work of the Committee on Public Relations maintained jointly with the Northern Baptist Convention at Washington, for the purpose of giving a united voice to "common Baptist distinctive principles." The Convention opposed the inclusion of ministers and lay employees in the Social Security system. It was reported that the denomination had 1,949,174 members of 25,018 local churches.

UNITARIAN CHURCHES

The May meetings of the American Unitarian Association and affiliated organizations were held as usual in Boston. The Association debated and passed upon a long list of resolutions proposed by round table discussion groups. The Taylor appointment to the Vatican was condemned, but discussion revealed wide division of sentiment about it. Resolutions affirming the rights of conscientious objectors for exemption from military service and provision for the registration of such Unitarian objectors were passed against vigorous opposition. The idea of a world federal union was approved for study.

The year saw the taking over of the previously independent publication, the *Christian Register,* as an official publication of the American Unitarian Association, also the liquidation of the Beacon Press as a separate publication agency. All Unitarian publications are now to bear the imprint of the American Unitarian Association. The most important action of the year was the institution of a Unitarian Service Committee, similar to that maintained by the Friends, to carry on war and refugee work. The annual meeting of the Western Unitarian Conference, an organization independent since its founding in 1852 and having as its object "to foster religion without any denominational or theological label," was held in St. Paul just before that of the American Unitarian Association. The Western Conference undertook no business but affirmed its solidarity of interest with the national organization. Mrs. Aurelia Reinhardt, president of Mills College, Oakland, Calif., was elected moderator of the American Unitarian Association for the ensuing year. For the year ended Aug. 31, 1940 there were reported in continental United States 58,454 members in 358 churches.

FRIENDS

The various branches of the Friends reiterated the traditional Quaker witness in regard to absolute opposition to war, and furthered intensive services on behalf of refugees, sharecroppers, and other neglected groups in the United States, and also relief efforts in various European countries. The American Friends Service Committee, Philadelphia, was the agency through which these various relief efforts were carried out. In 1940 the Committee announced the formation of volunteer work camps for young persons called for training under the Selective Service Act and who were conscientious objectors.

FEDERATED AND INDEPENDENT CHURCHES

The Bureau of the Census reported through the Census of Religious Bodies, 1936, new information in regard to federated and independent churches. Federated churches are usually defined as those that conduct local affairs in common but maintain national denominational affiliation. The Census reported 508 such churches for the year 1936, of which 82 are in urban territory (places having over 2,500 persons) and 426 in rural areas. This was a considerable gain over the number reported in 1926 when the figure was 361. These churches are found mainly in New England, the Middle Atlantic and East North Central and West North Central states. For the year 1936 there were also reported 384 local independent congregations, an increase over the figure for 1926. One hundred fifteen of these were in urban territory and 269 in rural. Total membership reported in independent congregations was 40,381 in 1926 and 40,276 in 1936.

INTERDENOMINATIONAL ACTIVITIES

BY PRESTON KING SHELDON

EDITOR AND WRITER

PLANS FOR PEACE ACTION

The world's religious leaders continued with renewed vigor in 1940 to plan for peace action though in the midst of the threats of dictators and rapidly shifting forces which seriously interfered with all interdenominational cooperation particularly through propaganda. In a statement and program adopted Nov. 13 at its 25th annual meeting in New York City, the World Alliance for International Friendship through the Churches viewed the period as one of "catastrophic change."

Organized in August, 1914, at the outbreak of the World War, the Alliance had succeeded by 1940 in setting up councils for peace in about 35 nations, with hundreds of men and women of all nations participating in meetings held to offset "the deep-seated jealousies founded upon economic wrongs, as well as the ancient grudges." In the face of the European war, the Alliance leaders took stock of the first quarter century of their work and looked upon events as forcing "a setback for the time being." Its published statement said: "Nevertheless the World Alliance is undaunted even in the face of these difficulties. Its ideals are as valid today as ever before."

PRONOUNCEMENTS OF THE WORLD ALLIANCE

A Changing World.—"What is going on in the world today can be rightly understood only as we consider these events as phenomena in a period of catastrophic change. We are living at the end of an epoch of human culture. The pattern of the world is not yet clear. We believe, however, that it will endure to the extent that it blends human solidarity with justice. The political organization of mankind into a world community of orderly cooperation requires a limitation of the sovereignty of independent nations. The distribution of God's material gifts more equitably among the children of men, in a machine age, points toward some form of organic technique, to insure that the prosperity of any one individual, class, nation or race shall not be bought at the price of impoverishing or exploiting other men."

Religion and the State.—"There will always be a difference of opinion among conscientious religious people regarding the relation of the individual to the State, particularly when the use of force is employed as a measure of self-defense. Our first loyalty is to God and His way for man. The conscience of the individual is the ultimate guide of action, but in a democratic society the individual must constantly face himself with the problem of the common good. In a democracy all are responsible for the acts of the State. Therefore we must confront the State with the ideals that keep righteousness ever above expediency. When the secular State is endangered, however, then self-preservation becomes its first law. Consequently, when the ideals of free people, who individually detest war are at stake and when to many citizens it appears an inescapable duty to employ force in their defense, the decision becomes tragic."

Appeal of Religion.—"The task of religion today is to bring penitence and hope to an age of disillusionment, perplexity, and despair. There is an imperative need in this critical time for strong faith in the sovereignty of God and in the brotherhood of man and for a resolute determination to do our part in establishing a better international order. As the dark reality of war spreads over the world and we hasten our defenses against it, we appeal to Americans of all faiths and creeds to be calm and just, and to hold steadfastly to their basic belief in God, democracy, and the right."

The Program.—The Alliance urged "each church to seek a renewed faith in the possibility of a peaceful world and to rededicate itself to the struggle for such a world." It recommended "a wider study of the conditions for a just and lasting peace;" that "local religious groups" should "make every effort to maintain and develop religious unity and cooperation, both at home and abroad." As means of aiding the national defense, it was urged that churches strengthen "faith in democratic ideals, by opposing profiteering and self-seeking and by encouraging efforts to build a finer democracy within the community. Prejudice and discrimination because of race or creed must be opposed; the basic liberties must be protected; the rights of conscience must be assured." "Real sacrifices for the sake of the victims of oppression and aggression" were urged as well as "a persistent opposition on the part of religious groups to any economic participation in aggression." Support of church groups was also urged "to the opponents of aggression" but "churches should support the Government in its determination to keep out of the world war as a belligerent."

WORLD COUNCIL IN WARTIME

The more concrete program of the World Council of Churches also had its difficulties, though its administrative committee met Jan. 7-8 in Apeldoorn, Holland and received a report that the total number of churches accepting invitations to join had reached 65. A drop of five was noted in a communication sent out May 16 by William Adams Brown, chairman of the joint executive committee in America of the World Council of Churches, who gave a direct report of latest developments, saying the number was 60, but sounding a note of hope for new increases. Two of the churches no longer able to cooperate directly were Scandinavian in origin. The Rev. Roswell P. Barnes, associate general secretary of the Federal Council of the Churches of Christ in America, visited European churches early in 1940, attending the Apeldoorn meeting and bringing back a report that executives of various ecumenical organizations with international offices in Geneva were meeting regularly and working with emergency groups.

PHILADELPHIA CONFERENCE

A national study conference on the churches and the international situation was held in Philadelphia, Feb.

27-29, to which delegates were invited by the Department of International Justice and Goodwill of the Federal Council of Churches and the Committee on International Relations of the Foreign Missions Conference of North America. The 285 delegates, who were selected by appropriate agencies within 23 denominations, adopted a statement urging that "the churches maintain the integrity of their essential fellowship in spite of the antagonisms and cleavages which set men over against each other in war" and that they "labor for a just and durable world order." The conference agreed that the United States must remain out of the conflicts in Europe and the Far East. "It must be clear now, that no nation has a right to be a law unto itself, or the sole judge of its own cause." A broad program of world economic cooperation was likewise approved. This included improving standards of labor and living by international agreement, access to raw materials and trading on equal terms, currency stabilization, and a better coordination of financial policies. Extending a "moral embargo" including octane gas, crude oil, trucks, scrap iron, etc.; to the Far East was urged in a divided vote. Christians were urged to ask the United States Government to use all means to seek a settlement in East Asia.

On conscientious objectors, the conference held that when Christians "come in honesty and solemnity to a conscientious repudiation of participation in war, the Church has no recourse but to uphold both their right so to choose, and their freedom to take such action as the choice may involve." The Church, however, ought not to seek special privileges for conscientious objectors. Its main interest in using legal means to uphold their civil rights is that of maintaining religious freedom and the rights inherent in the democratic form of government, the conference held and requested the Federal Council of Churches to set up a committee to study the Church's obligations and duties to those of its members objecting to war and to engage in conferences with the proper government authorities on the status of conscientious objectors. Equal concern was expressed for the freedom of church members who held opposite views.

The Department of International Justice and Goodwill of the Federal Council issued in May a guide for study and discussion based upon the message from the 285 delegates who met in Philadelphia in February. They had recommended that as soon as fighting had ceased a representative gathering of lay and clerical Christian leaders be convened to crystallize the thought of religious minds and exert the influence of churches upon the peace terms. It was noted that no such concentrated and organized effort followed the World War. The department invited John Foster Dulles, an attorney, to head such a commission at once.

THE FEDERAL COUNCIL OF CHURCHES

A total of 316 pamphlets were published by the Federal Council from September 1939 to September, 1940, of which 133 were on religion and the Church. They were noted on Sept. 7, 1940 in the Information Service bulletin of the department of research and education of the Federal Council.

A national Christian mission was started in September following more than 18 months of preparation. A World-Wide Week of Prayer was conducted Jan. 8-14 and a world-wide communion service held at Protestant churches on Oct. 6. The speakers met an average of 45 assignments daily. E. Stanley Jones of India spoke at the opening session of each mission as the group went from city to city. The series was to end March 23, 1941, in Los Angeles, having started in Kansas City. The Rev. Dr. Adolf Keller, European secretary of the Federal Council of Churches, arrived in October to tour the United States as one of the speakers.

Included in seminars conducted

during the National Christian Mission was an emphasis upon religion in industrial relations. This was regarded as an expression of the Council's purpose, another example having been an interfaith conference in June at Washington, D.C., where the chairman of the board of directors of the National Association of Manufacturers and two other prominent employers were heard, as well as two prominent labor leaders. Roman Catholics and Jews attended. Informal conferences of business men and ministers were begun in three cities, New York, Buffalo and Rochester, in June, without formal addresses, the emphasis being put upon "the give and take of discussion." Among the subjects talked over were the mutual interests of ministers and industrial leaders; the proper functions of the Church and its ministers in dealing with social and industrial questions; attitudes the churches should take toward specific industrial questions such as unemployment, poverty, and social security, employer-employee relations and the relations of government to industry, and social checks and balances in a system of private enterprise.

The annual Labor Sunday message of the executive committee of the Federal Council, issued through its Department of the Church and Social Service, covered the concern of the Church over religion and unemployment, the roots of the nation's economic problems, spiritual and social dangers, and the Church's duty. Under the latter head the message declared, "The Church must insist in the name of God that every man shall have an opportunity for self-respecting work"; that America should "accept the challenge to discover and put into effect measures for the cure of unemployment as one of the greatest possible contributions to democracy and to enduring peace among all nations."

THE ATLANTIC CITY CONFERENCE

Steps to promote organizing of consumers' cooperatives were urged at a conference in Atlantic City, Dec. 7-13, of the Federal Council and six other national church organizations. The Council at the close of the week held its biennial meeting and the other bodies at stated times held separate meetings. On Dec. 10-12 all the groups were represented by 700 delegates in joint plenary sessions. On the second day of these, a special pronouncement was considered on cooperatives. The bodies represented in addition to the Federal Council, were the Home Missions Council, Council of Women for Home Missions, Missionary Education Movement, National Council of Church Women, Foreign Missions Conference, and United Stewardship Council. Seminars were held on the world mission of the Church, the Church and the international crisis, the Church and social change and Christian unity and cooperation.

In speaking at a joint plenary session Dr. Halford E. Luccock, of Yale Divinity School, declared that "the development of cooperatives is a concrete program of education to train people in the daily work of democracy." In the seminar on the Church and Social Change, F. Ernest Johnson, of the department of education of the Federal Council of Churches said "we are passing out of producer economics into a period of consumer economics." He warned that the defense program and the apparent prosperity accompanying it was merely "postponing of the deluge." He saw the organizing of consumers cooperatives as a means of putting democracy to work. James Myers, industrial secretary of the Council, also favored cooperatives. The pronouncement was drawn up by a commission headed by J. Henry Carpenter, chairman of the Council's committee on the church and cooperatives.

The resource leader was Wallace J. Campbell, assistant secretary of the Cooperative League of the United States. The pronouncement was unanimously adopted by the 125 delegates at the seminar and reported back to the plenary session.

Luther A. Weigle, dean of Yale Divinity School, was elected president of the Federal Council to succeed George A. Buttrick of Madison Avenue Presbyterian Church, New York City. The right of labor to organize and its duty to assume moral responsibility consummate with its growing power was emphasized in a resolution of the council. A greeting was sent to Christians throughout the world. The Episcopal Church was represented for the first time as a full member.

A committee on conscientious objectors was set up in May by the Council, headed by Bishop G. Bromley Oxnam, of the Methodist Church, following a request for such a committee from the Methodist General Conference. On Oct. 16, Paul Dwight Moody, president of Middlebury College, Vt., began his duties as liaison official between the churches and Protestant chaplains serving men in the army and navy under selective service. He was released for a year by the college. He gave an address at the closing session of the Council in Atlantic City in December. The delegates decided to invite all interested Protestant and non-Roman Catholic groups in Washington to set up a general committee to handle spiritual problems of the army and navy.

CHRISTIAN AND JEWISH REFUGEE RELIEF

The Council announced, following its January meeting, that the sum of $125,000 allocated to Christian refugees through the Federal Council, by the United Jewish Appeal for Refugees and Overseas Needs had been distributed as follows: $100,000 to the American Committee for Christian Refugees; $15,000 to the American Friends Service Committee; $5,000 to the Provisional Committee of the World Council of Churches, for assistance to refugees having visas that were soon to expire; and $5,000 to the Central Bureau for Relief of the Evangelical Churches of Europe. The Jewish group also allocated $125,000 to Pope Pius XII for aid to Roman Catholic refugees. The latter sum was given as a memorial to Pope Pius XI.

In a letter to Bishop Bernard J. Sheil of Chicago, who was designated to convey the gift and communication to the Vatican, the Jewish leaders said their people would never forget "the magnificent struggle he (Pope Pius XI) made to combat the ungodly doctrine of racialism which strikes at the very roots of the religious faith of civilized men." Acknowledging receipt of the gift in behalf of Pope Pius XII, the bishop noted that problems growing out of "inhuman, ungodly fanaticism" were of vital concern to Catholics, Protestants, and all men of good will.

HOME MISSIONS COUNCIL OF NORTH AMERICA

The conference Dec. 7-13 at Atlantic City marked the beginning of the spread of a spirit of unity among Protestants in a way never before attempted. There were about 750 delegates in attendance for all or part of the period. The addresses covered frequently world confusion, conflict and suffering and stressed repeatedly an awareness of a need for dropping sectarian differences to promote brotherhood. Out of the meeting came the merger of the Council of Women for Home Missions and the Home Missions Council with a new designation as the Home Missions Council of North America. The following were elected the first officers of the new body: Dr. G. Pitt Beers, Northern Baptist Convention, president; Mrs. Norman Vincent Peale, Reformed Church in America, and Dr. E. Graham Wilson, Presbyterian Church in the U.S.A., vice-presidents; Mrs. D. Burt Smith, United Lutheran Church, secretary, and Miss Bettie Brittingham, Methodist, treasurer.

XVII. RELIGION AND RELIGIOUS ORGANIZATIONS

CHURCH STATISTICS

The United Stewardship Council in October published its annual statistical report on Protestant denominations in the United States and Canada under rearranged headings introducing a division of per capita gifts from living donors into those for denominational benevolences and those for others. The comparison between these statistics and those of 1939 was affected to some extent by lack of reports from two Lutheran bodies included in that year. A drop in the amount of total gifts for congregational expenses was attributed to the lacking figures. The data were furnished by national denominational officials and compiled for the Council by Harry S. Myers of Hillsdale College, Hillsdale, Mich., secretary of the Council. For the first time Methodists appeared in a single group as a result of the merger effected in 1939 by the three major bodies of that communion—Methodist Episcopal, Methodist Episcopal South and the Methodist Protestant.

UNITED STEWARDSHIP COUNCIL STATISTICS, 1940

Religious Body	Per Capita Gifts				
	Denominational Benevolence	Other Benevolence	Total Benevolence	Congregational Expenses	Total From Living Donors
1. Baptist, Northern	$1.62	$ .63	$2.25	$12.16	$14.41
2. Baptist, Southern	1.27	....	1.27	6.24	7.51
3. Baptist, Seventh Day	4.34	....	4.34	11.94	16.28
4. Brethren, Church of	1.28	1.04	2.32	8.67	10.99
5. Brethren in Christ, United	2.18	.54	2.72	10.87	13.59
6. Congregational and Christian	1.24	.45	1.69	12.67	14.36
7. Disciples of Christ	1.35	....	1.35	6.56	7.91
8. Episcopal, Protestant	2.42	.41	2.83	19.88	22.71
9. Evangelical Church	3.06	.20	3.26	18.72	21.98
10. Evangelical and Reformed	1.33	.65	1.98	12.37	14.35
11. Lutheran Church, United	2.33	....	2.33	12.40	14.73
12. Lutheran Evan. Augustana	3.23	....	3.23	13.69	16.92
13. Methodist	1.19	.34	1.53	9.85	11.38
14. Moravian, Northern	3.04	....	3.04	8.92	11.96
15. Nazarene, Church of	3.15	1.15	4.30	26.59	30.89
16. Presbyterian, United	5.22	1.19	6.41	16.85	23.26
17. Presbyterian, U. S. (S)	5.11	.27	5.37	15.74	21.11
18. Presbyterian, U. S. A. (N)	2.81	.93	3.74	17.92	21.66
19. Reformed in America	3.58	.60	4.18	19.50	23.68
Average, U. S., 1940	1.73	.44	2.05	11.12	13.18
Average, U. S., 1939	2.36	....	2.36	11.49	13.85
20. Baptist, Ontario and Quebec	4.25	.57	4.82	11.57	16.39
21. Presbyterian, Canada	2.59	.45	3.04	14.06	17.10
22. United Church of Canada	3.50	.38	3.88	14.36	18.24
Average, Canada, 1940	3.36	.41	3.77	14.12	17.89
Average, Canada, 1939	3.44	....	3.44	14.28	17.72
General Average, 1940	$1.79	$ .43	$2.12	$11.23	$13.35
General Average, 1939	$2.34	....	$2.34	$11.09	$13.43

TOTAL GIFTS

Religious Body	Total Benevolence	Congregational Expenses	Total From Living Donors	Total Income	Membership	Date for Year Ending
1. Baptist, Northern	$ 3,490,001	$ 18,837,245	$ 22,327,246	$ 24,054,094	1,549,012	4/30/40
2. Baptist, Southern	6,267,263	30,869,268	37,136,531	37,136,531	4,949,174	12/31/39
3. Baptist, Seventh Day	29,789	81,959	111,748	145,441	6,865	6/30/40
4. Brethren, Church of	401,605	1,500,000	1,901,605	2,019,605	173,000	2/29/40
5. Brethren in Christ, United	1,025,438	4,101,992	5,127,430	5,254,125	377,388	12/31/39
6. Congregational and Christian	1,964,069	14,767,254	16,731,323	18,543,497	1,165,530	12/31/39
7. Disciples of Christ	2,243,937	10,875,048	13,118,985	13,118,985	1,657,426	6/30/39
8. Episcopal, Protestant	4,017,198	28,233,878	32,251,076	32,753,331	1,420,171	12/31/39
9. Evangelical Church	724,173	4,163,059	4,887,232	4,887,232	222,390	9/30/40
10. Evangelical and Reformed	1,302,428	8,146,129	9,448,557	9,448,557	658,571	12/31/39
11. Lutheran Church, United	2,748,745	14,651,890	17,400,635	17,400,635	1,181,445	12/31/39
12. Lutheran Evan. Augustana	843,350	3,576,125	4,419,475	4,419,475	261,132	12/31/39
13. Methodist Church	10,596,950	68,005,045	78,601,995	78,601,995	6,905,970	12/31/39
14. Moravian, Northern	74,119	217,022	291,141	291,141	24,329	12/31/38
15. Nazarene, Church of	693,810	4,293,396	4,987,206	4,987,206	161,487	12/31/39
16. Presbyterian, United	1,202,008	3,159,012	4,361,020	5,618,710	187,470	3/31/40
17. Presbyterian, U. S. (S)	2,835,552	8,374,725	11,210,277	11,373,798	532,177	3/31/40
18. Presbyterian, U. S. A. (N)	7,268,240	34,794,358	42,062,598	47,512,598	1,941,091	3/31/40
19. Reformed in America	682,503	3,183,292	3,865,795	4,156,821	163,233	4/30/40
Total, United States, 1940	48,411,178	261,830,697	310,241,883	321,723,777	23,538,671	
Total, United States, 1939	31,665,631	286,589,153	318,254,784	318,254,784	24,902,143	
20. Baptist, Ontario and Quebec	267,454	641,914	909,368	1,031,995	55,500	4/30/40
21. Presbyterian, Canada	531,592	2,462,349	2,993,941	3,030,123	175,071	4/30/39
22. United Church of Canada	2,496,968	9,239,836	11,736,804	13,072,662	643,634	12/31/39
Total, Canada, 1940	3,296,014	12,344,099	15,640,113	17,134,780	874,205	
Total, Canada, 1939	3,008,552	12,471,706	15,480,258	15,480,258	872,946	
Grand Total, 1940	$51,707,192	$274,174,796	$325,881,996	$338,858,557	24,412,876	
Grand Total, 1939	$60,452,511	$299,060,859	$359,513,370	$359,513,370	25,143,316	

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* Very incomplete.

CONFERENCE OF LEADERS IN SCIENCE, PHILOSOPHY, RELIGION

The conference of leaders in science, philosophy, and religion held in September in New York City was attended by 500 persons. In a preliminary statement announcing the conference, the founding members said that "in their relation to the democratic way of life" they realized "that today civilization itself is threatened by the rise of totalitarian systems based on anti-scientific, anti-philosophic, and anti-religious dogmas; that science, philosophy, and religion can survive only in a world which respects the human worth of the individual; and, at the same time, that each of these traditions can make a contribution to the concept of universal human worth. They believe further, that the departmentalization of thought in democratic societies has been in part responsible for the weakness of democracy in the face of totalitarianism.

"Clearly the time has come when those who are helping to fashion an American way of life should try to meet one another, to reach a mutual understanding, and if possible to formulate the basis on which they may cooperate for the preservation of democratic ideals.

"There is no suggestion that any discipline should become subject to another; nor is there any thought of reducing the various religious traditions to a common denominator. But without surrendering its individuality, each tradition—philosophic, religious or scientific—involved in the general purpose, could contribute to the creation of mutual respect and understanding and to a common approach to American democratic living."

The addresses covered the social sciences, philosophy, the natural sciences and religion and the philosophy of education. The papers presented at the conference including one written by Albert Einstein, will be published.

NATIONAL CONFERENCE OF CHRISTIANS AND JEWS

The summer of 1940 was reported as the busiest in the history of the National Conference of Christians and Jews. In the Fall a three-month period of speeded-up activity was reported with activities centered on leaders and teachers in labor, agriculture, business leaders, and teachers in summer schools. In this period, which ended with September, there were 1,173 sessions, reaching 52,494 leaders. There were 247 volunteer speakers and 50 teams, each composed of a Roman Catholic priest, a Protestant minister, and a rabbi working in this period. A total of 930 radio broadcasts were conducted and the number of news articles and editorials were 1,430.

The seventh annual brotherhood week, Feb. 18-25, embracing in its plan the celebrating of Washington's Birthday anniversary, was likewise reported as drawing out more participation than ever. It was endorsed by President Roosevelt, governors, and mayors. In a report in March, it was stated that 1,000 colleges had been reached the previous year by goodwill tour groups, establishing round tables.

Chief Justice Charles Evans Hughes was honored in Washington, D.C., in December, with an inter-faith award because of his part in organizing the conference in 1928 with Newton D. Baker and S. Parkes Cadman, and his continued interest. Mrs. Parker O. Griffith was inducted as Protestant co-chairman of the Woman's National Advisory Committee of the Conference at the Willard Hotel, Washington, D.C., in January.

INTERFAITH COMMITTEE FOR AID TO DEMOCRACIES

Apprehension over the fate of democracies was apparent in late December in a statement from an Interfaith Committee for Aid to the Democracies, formed by Roman Catholic, Jewish, and Protestant clergymen, which called for support of Great Britain through supplies "freely given or lent" to her and her allies. President Roosevelt was urged to call a conference of democratic countries, including those invaded, to "counsel together for the defense of our liberties and to set forth our common purpose to achieve a world in which freemen can live." A news release said that "in line with its declaration, the Inter-Faith Committee for Aid to the Democracies will initiate and stimulate activities among the three major religious groups in securing the fullest aid to all democratic peoples." This statement in large measure departed from the previously existing situation in which but little propaganda had been noted from clergymen that might be construed to hint at the possibility of direct aid being given by religious leaders to any program of intervention by the United States in the European war.

Other pronouncements by inter-faith groups included one from 278 clergymen of Protestant and Jewish faiths, condemning the "alarming number of instances of entirely illegal interference with the election rights of certain minority parties," as a threat to freedom of worship. The political groups cited included Democrats-for-Willkie, the Socialist Labor Party, the Prohibition Party, the Socialist Party, and the Communist Party. "To deny any citizen the legal right to vote as his conscience dictates, is to abolish the franchise," the statement said. It also declared opposition to some of the political platforms and purposes of the parties concerned. "As churchmen we are particularly concerned with the right of free conscience and free worship," the statement said, and continued: "The recent history of other nations has shown to all men that this precious right cannot exist alone, but is dependent upon the continued freedom to exercise all democratic rights."

Another group of 307 pastors drew up a declaration affirming they would stand by to defend the rights of conscientious objectors to conscription.

FOREIGN MISSIONS CONFERENCE

The annual meeting of the Foreign Missions Conference was held in June at Swarthmore, Pa. The committee of Reference and Counsel established the office of general secretary. Dr. Emory Ross, who had been general secretary of the American Mission to Lepers was inducted Sept. 25 into the new office of this committee.

A special committee organized in 1939 to raise $30,000 the next three years for Dr. Toyohiko Kagawa, Japanese evangelist and former Christian labor leader, continued its activities, but decided to spread the effort over ten years to get that amount. Dr. Kagawa was arrested by Japanese militarists in August and for ten days was questioned on a charge of having violated military regulations. He was released early in September unconditionally but the ordeal had so severe an effect on him that he went into semi-retirement to rest.

THE ROMAN CATHOLIC CHURCH

By Charles A. McMahon

Editor, *Catholic Action*

NATIONAL DEFENSE AND CHURCH PROBLEMS

The American program of national defense brought with it new problems for the Catholic Church in the United States and consequently stepped up the tempo of its activities. Early in 1940 Pope Pius XII in his second Encyclical, *Sertum Laetitiae,* marking the 150th anniversary of the American Hierarchy, paid high tribute to the work of the American Bishops. Similar tributes were paid by Vatican officials, including Carlo Cardinal Rossi, Secretary of the Sacred Consistorial Congregation, and Giuseppe Cardinal Pizzardo, Prefect of the Sacred Congregation of Seminaries and Universities and President of the Central Office of Catholic Action. American prelates and laymen were honored by the Holy See. Bishop Edmond Heelan of Sioux City, marking his golden jubilee as a priest, was named an Assistant at the Pontifical Throne; American priests received the rank of Prothonotary Apostolic, Domestic Prelate, and Private Chamberlain; and American laymen received the Papal Knighthood. The Rt. Rev. Msgr. Francis J. Brennan, of Philadelphia, was named a member of the Sacred Roman Rota, and the Rev. Dr. Walter S. Carroll, of Pittsburgh, was named to serve in the Papal Secretariat of State. The Papal Medal, "Benemerenti," was conferred upon 20 members of the faculty of the Catholic University of America.

In the meantime, American Catholics, led by their Bishops, geared their activities to the new conditions brought about by the war. First of all, complying with the Pope's plea for prayers that peace with justice might be realized, Catholics dedicated the month of May to this end and later joined with the Pontiff in making Nov. 24 a day of propitiation for peace and the relief of war victims.

The Hierarchy, at its annual General Meeting, took steps to coordinate Catholic interests and activities stemming from the nation's program for preparedness and to unify all Catholic relief and refugee work under a single Episcopal Committee. To the first end, there was formed a National Catholic Community Service composed of the Administrative Board of the National Catholic Welfare Conference, plus the Military Delegate of the Army and Navy Diocese. The Bishops pledged themselves and their flocks to "give themselves unstintingly" to their country's "defense and its lasting endurance and welfare." It was disclosed at the same meeting that the Bishops had provided $1,200,000 for the relief of suffering peoples abroad, this amount being in addition to sums, believed considerable, which U. S. Catholics contribute to general appeals for relief, such as the Red Cross and similar drives.

CHURCH CONTRIBUTION TO FOREIGN RELIEF

The Bishops' Committee for Polish Relief reported to the State Department, as of Sept. 30, that a total of $383,240.84 had been collected for that purpose, while the Episcopal Committee for Catholic Refugees announced that, as of Sept. 30, it had collected a total of $347,332.60 for its work. A total of $506,000 has been expended by the Bishops of the United States for welfare and educational work among Mexicans, including the establishment of the new seminary at Las Vegas, N. M. to train Mexican candidates for the priesthood. It was also reported that the American Bishops made available more than $30,000 for relief of those who suffered losses in the Chile earthquake. Early this year the Bishops' Committee for Polish Relief sent Pope Pius XII $156,000 for use in the Sovereign Pontiff's program of relief for the Poles. In addition, the Bishops made available to His Eminence, August Cardinal Hlond, Archbishop of Gneisen and Posen, the sum of $10,000 for Polish relief work. They also made available $10,000 to Archbishop Ciriaci, Papal Nuncio to Portugal, for care of Polish refugees in that country, while a sum was sent to Archbishop Caruana, Papal Nuncio to Cuba, for relief of Polish refugees there. It was estimated that the Bishops have aided the stricken people of China to the extent of $100,000.

THE CHURCH AND THE SELECTIVE SERVICE ACT

The enactment of the Selective Service Act raised questions related to the churches and their ministers, chief of which was the matter of exemption for priests, seminarians and Religious. In its original form the bill made no mention of seminarians and Brothers in the exemption provisions. The Rt. Rev. Msgr. Michael J. Ready, General Secretary of the National Catholic Welfare Conference, made a successful appeal to Congress to have specific exemption of priests, seminarians, and Religious written into the act.

The Church acted quickly to meet the demands of spiritual care for the expanded national army. The Rt. Rev. Msgr. William R. Arnold, Chief of Army Chaplains, announced that 75 Catholic chaplains, the greatest number since the World War, already were on active duty and that 275 more would be needed by April 1.

The Knights of Columbus pledged support to the Bishops' crusade to emphasize doctrines at once American and Catholic through the Commission on American Citizenship under the auspices of the Catholic University of America.

CHURCH ACTIVITIES IN THE UNITED STATES

Despite the war and uncertain and dangerous travel facilities, Catholic priests, Brothers, and Sisters continued to go out from the United States to foreign missions. The Franciscans of the California Province were invited to take over several missions in China's war.

The Catholic population of the United States, Alaska and the Hawaiian Islands was put at 21,403,136 by the 1940 edition of *The Official Catholic Directory*. The 1930 United States Religious census put the Catholic population for that year at 19,914,937. The 1940 figures represented a gain of 1,309,934.

Blessed Mother Rose Philippine Duchesne, a Sister of the Sacred Heart, who died at St. Charles, Mo., in 1852, was beatified May 12, while the causes looking to the beatification of Kateri Tekakwitha, "Lily of the Mohawks," and of Mother Elizabeth Ann Seton, Foundress of the Sisters of Charity in America, were advanced. In Hawaii there was erected a local tribunal in the Cause for the Beatification of Father Damien De Veuster, famed Apostle to the lepers of Molokai.

The American Bishops continued their vigilance and activity against indecency on stage, screen, and in literature, particularly since, at their annual meeting, they warned of and protested against the "increasing objectionable tendencies which lately have become manifest in films." Widespread successes in minimizing the distribution of objectionable periodical literature was reported as a result of the efforts exerted by the National Organization for Decent Literature.

American Catholics throughout the country observed the golden jubilee of Pope Leo XIII's famous Encyclical on the Condition of Labor and prepared for the celebration of the tenth anniversary of Pope Pius XI's Encyclical on Reconstructing the Social Order, which occurs in May, 1941.

DIOCESAN CHANGES

Important changes and additions in the personnel of the American Hierarchy took place in the course of the year. The Most Rev. Samuel A. Stritch, who had been Archbishop of Milwaukee, was named Archbishop of Chicago, and to Milwaukee went the Most Rev. Moses E. Kiley who had been Bishop of Trenton. The Most Rev. Michael J. Curley, Archbishop of Baltimore, was installed as the head of a second See—the new Archdiocese of Washington. Eleven new Bishops were named, three were transferred, an Archbishop and a Bishop died, and one Bishop resigned from his See. Two American priests were named Vicars Apostolic of mission areas in Manchuria and China, while one Vicar Apostolic died.

The Most Rev. Arthur A. Drossaerts, Archbishop of San Antonio, died in September; the Most Rev. Patrick Barry, Bishop of St. Augustine, died in August, and the Most Rev. Stephen Alencastre, SS. CC., Vicar Apostolic of the Hawaiian Island, died on shipboard *en route* from California to Hawaii. The Most Rev. Joseph G. Pinten resigned as Bishop of Grand Rapids and was named Titular Bishop of Sela.

Bishop Joseph C. Plagens of Marquette was transferred to Grand Rapids; Bishop Christian H. Winkelmann, Auxiliary of St. Louis, was made Bishop of Wichita, and Bishop William A. Griffin, Auxiliary of Newark, was named Bishop of Trenton; the Most Rev. Bernard T. Espelage, O.F.M., was consecrated first Bishop of Gallup, while Bishop Vincent J. Ryan was named Ordinary of Bismarck and Bishop Joseph H. Hurley Ordinary of St. Augustine; the Most Rev. Sidney Metzger became Auxiliary Bishop of Santa Fe; the Most Rev. John F. O'Hara, C.S.C., was named Military Delegate; the Most Rev. George J. Donnelly, was made Auxiliary Bishop of St. Louis; the Most Rev. Henry J. O'Brien, Auxiliary of Hartford; the Most Rev. Albert L. Fletcher, Auxiliary of Little

Rock; and the Most Rev. Thomas A. Boland, Auxiliary of Newark.

The Most Rev. Joseph M. Corrigan, Rector of the Catholic University, was consecrated Titular Bishop of Bilta. The Most Rev. J. Francis A. McIntyre was named Auxiliary Bishop of New York. The Most Rev. Raymond A. Lane, a Maryknoll missionary, became Vicar Apostolic of Fushun, Manchuria, and the Most Rev. Charles W. Quinn, another American priest, was named Vicar Apostolic of Yukiang, China. The Most Rev. John Buczko, former Auxiliary to the Ruthenian Rite Archbishop of Lwow, Poland, was named temporary Auxiliary to the Bishop of the Ukrainian Greek Catholic Diocese of the United States.

Archbishop Joseph Schrembs, of Cleveland, received the sacred pallium, as did the Most Rev. Francis J. Spellman, Archbishop of New York.

NATIONAL CATHOLIC WELFARE CONFERENCE

As in the case of the Church as a whole, the war abroad and defense preparations at home made the work of the National Catholic Welfare Conference unusually heavy. Coupled with this was the transfer of the national headquarters of the N.C.W.C. into its temporary location on the campus of the Catholic University in Washington during the demolition of the old building in preparation for the erection of the new offices. The new quarters will be combined with a memorial monument to Christ the Light of the World on Massachusetts Avenue. The monument will consist of a 90-foot stone facade with a 20-foot statue of Christ in a semi-circular niche.

On Ash Wednesday the Administrative Board of the N.C.W.C. issued a statement on "The Church and Social Order," urging "the necessity of bringing back God into education, into economic life, into all life, private and public, individual and social." The statement was quoted on the floors of Congress and printed in the *Congressional Record*.

Officials of the N.C.W.C. appeared before important Congressional committees to urge various enactments on behalf of American Catholics. Monsignor Ready's testimony at the hearings on the Selective Service Act and the appearance of William F. Montavon, Director of the Legal Department, at the capitol to urge certain amendments to the National Hospital Construction Act were the outstanding events in that field.

Bishop John M. Gannon, of Erie, Episcopal Chairman of the Press Department, disclosed in his annual report that the N.C.W.C. News Service planned a world-wide Catholic news service in the Spanish language, chiefly for distribution in Latin America. A Department of Youth was established in the N.C.W.C. with Bishop John A. Duffy, of Buffalo, as its Episcopal Chairman. The National Council of Catholic Women marked its 20th anniversary, and the National Council of Catholic Men reported that its nationwide weekly broadcast, the "Catholic Hour," noting its tenth anniversary, brought a record-breaking total of 293,987 commendatory letters in three months. A National Conference of Catholic Nurses was formally organized as a part of the N.C.W.C. program of Catholic Action. The 1940 election of the N.C.W.C. Administrative Board resulted as follows:

The Most Rev. Edward Mooney, Archbishop of Detroit, Chairman; the Most Rev. John B. Peterson, Bishop of Manchester, Vice-Chairman of the Board and Episcopal Chairman of the Department of Education; the Most Rev. Francis J. Spellman, Archbishop of New York, Secretary; the Most Rev. Francis C. Kelley, Bishop of Oklahoma City and Tulsa, Treasurer of the Board and Episcopal Chairman of the Department of Lay Organizations; the Most Rev. John Gregory Murray, Archbishop of St. Paul, Episcopal Chairman of the Department of Catholic Action Study; the Most Rev. Hugh C. Boyle, Bishop of Pittsburgh, Episcopal Chairman of the Legal Department; the Most Rev. Edwin V. O'Hara, Bishop of Kansas City, Episcopal Chairman of the Department of Social Action; the Most Rev. John Mark Gannon, Bishop of Erie, Episcopal Chairman of the Press Department, and the Most Rev. John A. Duffy, Bishop of Buffalo, Episcopal Chairman of the newly-created Department of Youth. The Most Rev. John T. McNicholas, O.P., Archbishop of Cincinnati, is a member of the Board without portfolio.

Assistant Bishops to the Administrative Board were chosen as follows: Most Rev. Emmet M. Walsh, Bishop of Charleston; Most Rev. Karl J. Alter, Bishop of Toledo; Most Rev. Thomas K. Gorman, Bishop of Reno; Most Rev. Francis P. Keough, Bishop of Providence; Most Rev. Walter A. Foery, Bishop of Syracuse; Most Rev. Bartholomew J. Eustace, Bishop of Camden, and Most Rev. Charles Hubert LeBlond, Bishop of St. Joseph.

The Rt. Rev. Msgr. Michael J. Ready was reappointed General Secretary. The Rev. Dr. Howard J. Carroll was renamed Assistant General Secretary.

The Most Rev. Samuel A. Stritch, Archbishop of Chicago, who retired from the N.C.W.C. Administrative Board in 1940 after serving five successive one-year terms—the limit under a standing rule—became Chancellor of the Catholic Church Extension Society at its November meeting. Bishop Kelley was chosen Vice-Chancellor. The Most Rev. Joseph F. Rummel, Archbishop of New Orleans, also retired from the Administrative Board, having served five successive terms.

THE POPE

World conditions served to make the pontificate of Pope Pius XII more than usually burdensome and active. Throughout the year the Pontiff exerted every effort in behalf of peace and in aiding the victims of the war wherever they might be. To remain close to the lightning developments internationally, His Holiness forewent the Papal custom of repairing for several weeks of the summer months to the Papal villa at Castelgandolfo. Utilizing the Vatican Radio Station on more than one occasion in discourses to pilgrims and allocutions to visiting groups and individuals, in homilies and *motu proprios,* the Holy Father constantly stressed that when peace comes it must be with justice; that the distressed peoples of all countries must be relieved of want and privation and suffering as far as possible; and begged the belligerents to cease warfare during a Christmastide truce to permit of a reverent observance of the Nativity season.

The Holy See gave generously of financial assistance for war sufferers and aided in the establishment of relief stations for refugees; made pleas to the belligerents to respect the rights of defeated peoples; and made use of the Vatican City Radio Station as a means of gathering information that would help to reunite families torn apart by the war.

THE VATICAN

Amid the chaos of war-torn Europe at least one important pact between the Holy See and an important nation was consummated—the Concordat between the Vatican and Portugal. It was the first solemn diplomatic pact concluded in the Pontificate of Pius XII and includes an important Missionary Agreement. Meanwhile, Lithuania, following its invasion by Soviet Russia, renounced its existing concordat with the Holy See and at about the same time the German Government rejected a proposal by the Vatican through which it was hoped Papal representation could be continued in Belgium and Holland.

No new Cardinals were created in 1940, marking the third successive year none had been elevated to the Sacred College. The deaths of Cardinals Jean Verdier of Paris and Goma y Tomas of Toledo, Spain, reduced the Sacred College to 55 members, 15 short of its complement.

Two new Saints were added to the calendar—Gemma Galgani, Passionist Tertiary of Lucca, Italy, and Mary of St. Euphrasia Pelletier, Foundress of the Sisters of the Good Shepherd, on May 2. Five beatifications took place within six weeks, as follows: Blessed Rose Philippine Duchesne, May 12; Blessed Gioacchina de Vedruna de Mas, May 19; Blessed Mary of the Crucified di Rosa, May 26; Blessed Maria Wilhelmina Emily de Rodat, June 9; and Blessed Ignatious of Laconi, June 16.

Myron C. Taylor was received by Pope Pius XII on February 27, but returned in late summer because of a serious illness.

Osservatore Romano, the Vatican City newspaper, observed its 91st anniversary, but because of indignities suffered by readers in Rome and elsewhere, its circulation was for a time limited to Vatican City. Ultimately, the controversy regarding these incidents was settled between the Vatican and the Italian Government, and the paper again was circulated throughout Italy.

Broadcasts over the Vatican Radio attracted international attention to their descriptions of conditions in Poland in which it was reported that priests had been slaughtered and the laity abused in two archdioceses.

With Italy plunged into the maelstrom of war, American priests and seminarians studying at institutions in Rome returned to the United States.

CATHOLIC EDUCATION

The N.C.W.C. Department of Education reported that 76,010 graduates received diplomas from Catholic schools in 1940, setting a new record. Catholic school construction work was valued at millions of dollars. The 1940 Catholic school population, all grades, was 2,602,458.

Important developments in the matter of religious instruction in education—a principle of Catholic pedagogy—were recorded, notably in New York, where legislation was enacted providing for released time to afford opportunity for religious instruction during public school hours. The Attorney General of Louisiana ruled that parochial and private school children were eligible for participation in the state free lunch program. The Indiana Supreme Court ruled, as legal, salaries paid by Vincennes, Ind. to Catholic Brothers and Sisters in three parochial schools taken over by the city in 1933.

The Department of Superintendents of the National Catholic Educational Association asked in November that Catholic school authorities "continue their efforts to secure for Catholic school pupils a just share of funds which are annually expended by the Federal Government and the individual states for the support of education."

THE CATHOLIC CHURCH IN FRANCE

The Church began to survey her losses in the brief hostilities with the Nazi forces as France lay conquered and divided. Churches, convents, and other religious structures suffered severely, and the fate of many of the 15,000 priests mobilized in the French Army was not known. The nation suffered a loss in the death on April 9 of His Eminence Jean Cardinal Verdier, Archbishop of Paris. His Eminence Emmanuel Cardinal Suhard, Archbishop of Rheims, succeeded to the See of Paris.

The French people steeled themselves for spiritual rehabilitation, and Catholic Action was being pushed intensely in the unoccupied areas. Legal disabilities, which oppressed members of religious Orders in France for nearly a score of years, were lifted in September by the Vichy Government. The Vatican Radio Station reported persecution of Catholics in Alsace-Lorraine by the occupying Nazis.

GERMANY

The fall meeting of the German Bishops at Fulda saw the Bishops of Austria present for the first time. No joint pastoral was issued. Religious conditions in Germany were marked by increasing government curbs and in some places actual persecution. The authorities imposed an annual tax of 30,000,000 marks against the churches, banned confession for war prisoners, and, according to one report, had rendered German Catholics virtual exiles in their own country. Because of the stringent food rationing, the German Bishops relieved their people of the obligation of fast and abstinence during Lent. The famed Oberammergau Passion Play was postponed until after the war. Some Catholic churches were damaged in British air raids, notably St. Hedwig's Cathedral in Berlin.

POLAND

Reports told of the wholesale deportation of priests and lay persons from former Poland, the confiscation of church properties, arrests and execution of prominent priests, and the despoliation of churches. Crushing taxes were said to have been imposed on churches in Russian-occupied Poland. One Polish Bishop was reported in Bolshevik custody, another in a Nazi concentration camp, a third to have gone insane after maltreatment, a fourth in a German concentration camp, and a fifth a prisoner in his See city. Cardinal Hlond, Primate of Poland, said from Rome that the Polish nation was enduring "a wave of unparalleled atrocities and cruelties."

ENGLAND

Conversions were on the increase in England when the full fury of the war broke around the isles. A total of 11,049 persons came into the Church in England and Wales in 1939. Aerial bombs destroyed and damaged churches, convents and other ecclesiastical establishments, but in November it was said Catholic churches were still being built in England, with construction work on the great Liverpool Cathedral continuing. His Eminence Arthur Cardinal Hinsley, Archbishop of Westminster, solemnly dedicated England to the Blessed Mother in November. Nearly 80 English students returned from the English colleges in Rome.

IRELAND

Ireland's leaders labored to keep their country from involvement in the war. Members of the Irish Hierarchy appealed to their people to rally to the cause of national unity, self-protection, and defense. Ireland lost its Archbishop of Dublin, the Most Rev. Edward J. Byrne, whose death occurred on Feb. 9. The Most Rev. John McQuaid, C.S. Sp. was named to succeed him in November. The Most Rev. Joseph Walsh was enthroned as Archbishop of Tuam. His Eminence Joseph Cardinal MacRory, Primate of All Ireland, marked his silver jubilee, and the Cathedral of Armagh and St. Mel's Cathedral in Longford celebrated their centenaries.

LOW COUNTRIES

The Cathedral of St. Gertrude at Nivelles, Brabant, Belgium was destroyed in the invasion; the heavily Catholic areas of Brabant and Zeeland in Holland suffered heavily in the *blitzkrieg;* and the war disrupted plans for sending an ambassador to the Vatican from Holland. In connection with the invasion, it was disclosed that 47 per cent of the soldiers mobilized in 1940 were Catholics.

SCANDINAVIA

The work of conversions in Norway was given a severe setback, it was feared, by the Nazi invasion of that country.

SPAIN AND PORTUGAL

Spain struggled to rise from the ashes of its bitter civil war with a vast program of restoration. Of the 75,085 structures scheduled to be built, 4,850 were to be churches and chapels and 425 rectories. Figures released in midsummer placed at 2,495 the members of religious orders of men slain in the civil war. The Franco Government pledged support to Catholic Action, and the government restored to the Jesuits properties seized in 1932. His Eminence Isidro Cardinal Goma y Tomas, Archbishop of Toledo, died on August 22. It was announced that it was proposed to hold the 1942 Eucharistic Congress in Seville.

Portugal observed the 800th anniversary of its foundations as a nation and the 300th of its independence from foreign domination. Religious ceremonies were prominent in these observances; Portugal's debt to the Catholic Church was gratefully acknowledged, and the country's Catholicity pledged anew. The Pope addressed an Encyclical Letter to the Portuguese on the occasion of the anniversary.

BALTIC COUNTRIES

The Russian seizure of Lithuania, Latvia, and Esthonia caused diplomatic ruptures between those countries and the Holy See and dealt a severe blow to Catholic life in these hitherto independent nations. Catholics represented a third of Latvia's 1,900,000 population and 80 per cent of Lithuania's population, although only about 5,000 out of the 1,100,000 persons in Esthonia.

LATIN AMERICA

Mexico had a turbulent year, largely due to the dissatisfaction over the new Education Law and the presidential elections. The successful candidate, Gen. Manuel Avila Camacho, issued a public statement stating that he is a Catholic believer, and earlier had pledged religious freedom, a promise in which the Most Rev. Luis Martinez, Archbishop of Mexico, publicly expressed confidence.

Argentina was bound to the Holy See with many new and impressive ties, notably the Pope's personal broadcast to the Third National Eucharistic Congress; the naming of Cardinal Copello as Legate to the Congress; and the signing of a bilateral diplomatic convention with the Holy See.

Brazil cooperated with the Pope in giving sanctuary to refugees. Many historic churches were damaged in the earthquake at Arequipa, Peru. The new Constitution of Cuba was commended to the Catholics of that country. Uruguay and Paraguay greeted the first Papal Nuncio to those countries, the Most Rev. Alberto Levame; Paraguay Catholics sought the restoration of religious teaching in the public schools. Venezuelan officialdom attended Caracas Cathedral services marking the first anniversary of Pope Pius XII's coronation. Bolivia sent a new Ambassador to the Holy See. A large number of priests and Brothers were recalled from Haiti to military duty in France.

CHINA AND JAPAN

Despite numerous obstacles, Catholic mission work in China was reported yielding encouraging fruit. The Catholic population had risen to 2,991,474, and conversions totaled in excess of 100,000, an advance of 23,041 in a year. Church property losses continued heavy under the frequent aerial bombardments. The missionaries added to their duties by relief work among the war-stricken people, which evoked the gratitude and tribute of the Chang Kai-shek Government.

In Japan, early 1940 figures showed a Catholic population of 283,491, a gain of 12,218 in a year. The total of adult baptism was 8,300.

THE EASTERN CHURCHES

By E. R. Hardy, Jr.

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STATISTICS

The publication of the *Census of Religious Bodies, 1936*, provides statistics for the Orthodox Churches as of that year, with information on organization in most cases carried down to a somewhat later date. At the same time it must be noted that the figures of membership indicate the relative rather than the absolute number of the various groups. The Orthodox Churches are accustomed to think of all those originating from their respective nationalities as their proper constituency, while the organization of each local parish often depends on the heads of families or some similar group of active members. The figures derived from local churches for the census may therefore usefully be listed along with those furnished to the 1939 *Yearbook of American Churches* by the ecclesiastical administrations; part of the difference is doubtless due to parishes not reporting to the census authorities.

The 1936 figures will be given first, the 1939 figures following in parentheses. The Hellenic Orthodox Church reports 241 (255) churches, and a membership of 189,000 (305,000); the Russian Orthodox 229 (238) churches, and a membership of 89,000 (526,000). For the Syrian Church the figures were 61 (69) and 18,000 (61,000), for the Serbian 27 (35) and 20,000 (100,000), for the Rumanian 35 (43) and 15,000 (34,000). Smaller groups were the Bulgarians, with five (5) churches and 1,000 (5,000) members, and the Albanians with 13 (10) and 3,000 (3,500). The Ukrainians had 28 churches and 11,000 members; the Carpatho-Russian Diocese, organized in 1938, does not appear in the census reports, but is understood to have about 60 parishes. Both of these bodies are affiliated with the Greek Church, and were presumably included with it in the 1939 figures. The major differences in these sets of figures are probably due to different bases of calculation and, in some cases, to the inclusion of Canadian parishes in the reports to the *Yearbook of Churches*.

HELLENIC (GREEK) ORTHODOX CHURCH

The work of the Hellenic Orthodox Church in America has largely the character of home missions, its most urgent task being among the younger generation and in the scattered communities beyond the reach of Orthodox and Greek institutions, not only in the United States but also in Latin America. An important agency in this work is the Theological School at Pomfret, Conn. for the training of future priests and teachers, now in its fourth year. The first American-born Greek clergyman, a student of this school, was ordained on Jan. 28, 1940 to serve as deacon and teacher in a church in Boston. The school is also the seat of the press for the educational work of the Church. In 1939-40 over 25,000 children received instruction in Sunday or weekday religious schools, and the number for this year was expected to be larger.

The Rt. Rev. Callistos, Bishop of San Francisco, died at Chicago on Nov. 28. Born in 1877, and a graduate of the University of Athens, he had come to this country in 1907, and served several congregations in the West. In 1927 he was made Bishop of San Francisco, with jurisdiction over the western states. After the reorganization of the Church into one diocese in 1931 he remained as assistant to Archbishop Athenagoras, with his residence in Chicago, and served as head of various diocesan committees and of the ecclesiastical court.

Since the outbreak of hostilities in Greece on Oct. 28, 1940 the needs of the fatherland have occupied a large place in the concerns of Greek Americans. The Archbishop interrupted an extensive visitation of the parishes of the West, which he began early in August, and returned at once to New York. As vice-chairman of the Greek War Relief Association, he has taken a prominent part in organizing support for that cause. On Dec. 8, outside his Cathedral in New York, he blessed 25 ambulances for Greece. On Dec. 15 a service of prayer for the Orthodox nations was held in the (Episcopal) Cathedral of St. John the Divine, New York, attended by some 5,000 Greeks and others; Bishop Manning and the Greek Consul-General spoke, and representatives of the various Orthodox Churches took part.

RUSSIAN ORTHODOX CHURCH

On account of the development of the war in the Far East, many Orthodox Russians are emigrating to America and settling on the Pacific Coast. With the help of several leading sisters who have arrived in San Francisco it is planned to organize a convent there. The Russian Church under Metropolitan Theophilus is developing its organization in Canada, where Bishop Ioasaph has been appointed as administrator. The Council of Bishops met at Detroit, and decided to hold the next All-American Sobor (Convention) in New York in 1942. The fourteenth annual convention of the youth organization, Federated Russian Orthodox Clubs, was held in Bridgeport, Conn., Aug. 31-Sept. 2. It voted to increase its support of the educational work of the Church, in particular the Theological Seminary in New York.

A Russian-American program was held on the American Common at the New York World's Fair on Sept. 29. Vespers were sung by the choir of the Holy Ghost Russian Church of Bridgeport, after which there were speeches by Countess Alexandra Tolstoy and Dr. John R. Mott and a program of music and dances.

OTHER ORTHODOX CHURCHES

The Synod of Antioch on June 15 elevated the Most Rev. Antony, Archbishop of the Syrian Antiochian Church of North America, to the rank of Metropolitan, in recognition of his valuable work for the Church in America. At the same meeting it decreed the adoption of the Reformed Julian Calendar throughout the Patriarchate of Antioch on Oct. 1 (the beginning of the Byzantine indiction-year, on which the Eastern Orthodox church year begins). This calendar, already adopted largely by the Greek and in part by the Rumanian Church, corresponds with the Gregorian except for a prospective additional correction. It therefore brings Christmas and other fixed feast days on the same dates as those of the Western Church, although the eastern calculation of Easter remains unchanged.

In the Serbian Orthodox Church of America Bishop Damaskin has been succeeded by the Rt. Rev. Dionysius who arrived from Yugoslavia in the spring. The Ukrainian Orthodox Church started a drive to raise funds for the erection of a cathedral in New York. The Carpatho-Russian Church is still involved in litigation with the Roman Catholic authorities over the title to several of its churches, including Bishop Orestes' Cathedral at Bridgeport.

ORTHODOX CHURCHES ABROAD

The extension of Soviet power during 1940 brought several centers of Orthodox church life under the Soviet Government. Bessarabia and Bukovina were among the most vigorous areas of the Rumanian Church; the Metropolitan Visarion of Cernauti, whose cathedral has been destroyed, was one of its most energetic and progressive leaders. The Baltic states, though predominantly Lutheran or Catholic, had been the scene of an active Orthodox life among their Russian minority. The first Red Army soldiers are reported to have exhibited a not unfriendly attitude towards the Church, but the Baltic countries are now subjected to the same regime in religious matters as the rest of Soviet territory. In Finland the famous monastery of Valaamo in Lake Ladoga was damaged during the war, and is included in the territory ceded to Russia; the monks are attempting to establish themselves elsewhere. Another ancient monastery, St. Tryphon's, near Petsamo, was also damaged, but remains in Finnish territory. In Russia itself, anti-religious pressure continues. Complaints in the anti-religious press of the persistence of religious practices and of slackening interest in the anti-religious campaign, are indirect evidence that the Church is still alive. With the shortage of clergy and discouragement of activity on their part, there has been an increase of religious leadership on the part of the laity, often under woman leaders. Sometimes such leaders conduct services, while for marriages people send rings to be blessed by the nearest available priest, and for funerals send earth to be blessed and then brought back and thrown on the grave.

Difficulties are also presented to the Church in the area which has come under German control. Bishop Seraphim of Berlin is attempting to keep together the Russian Church in Germany, Austria, Czecho-Slovakia, and in Poland where the position of the Metropolitan of Warsaw is obscure. The Metropolitan Eulogius of Paris is reported to have confided the administration of his diocese to two archpriests, for occupied and unoccupied France. The Paris Theological Academy, which has been for 15 years a center of Russian religious thought, is almost suspended, although a few professors and students remain. Once more the Russian Church is reminded that its strength does not lie in its organization, but in the devotion of the faithful.

Amid so much confusion, a happier event was the meeting of three of the eastern Patriarchs at Jerusalem. On March 17 the Patriarchs of Jerusalem, Antioch, and Alexandria joined in the Liturgy in the Church of the Holy Sepulchre, and during the following days conferred on the affairs of the Church, exchanging communications with the Oecumenical Patriarch of Constantinople and receiving calls from the civil and the non-Orthodox ecclesiastical authorities of the city. Such a meeting, valuable as an expression of Orthodox unity, would not have been possible for many years.

The Churches of the Balkan nations have shared in the struggles and anxieties of their respective countries during the past year. The Greek Church has played a considerable part in encouraging devotion to the national cause; mention has been made in the press of the energetic Bishop Spiridon of Yannina and his frequent appearances among the troops. Professor Alivizatos of Athens, internationally known theological scholar, circulated widely among religious and other societies an appeal from Greek churchmen for the moral support of the world against the unprovoked invasion of their country.

ARMENIAN CHURCH

The two Armenian prelacies of the United States have elected delegates to the National Congress which has been called to meet in Etchmiadzin, Russian Armenia on April 10, 1941 for the election of a Catholicos of All Armenians. The second see of the Armenian Church is also vacant, Bedros Sarajian, who was elected to the catholicate of Cilicia (now in Lebanon) in May having died after four months in office.

ASSYRIAN CHURCH

Mar Shimun, the head of the Assyrian Church, has arrived in this country and is visiting the Assyrians of America who have five congregations besides scattered groups elsewhere in the hope of organizing them and obtaining some help for the remnant of his nation in Iraq and Syria. The Assyrians, whose banishment and troubles are a legacy of the first World War, are the survivors of the ancient Church of the East, after the fifth century Nestorian in theology, which in the Middle Ages extended as far as India and China. The name is sometimes also given to the Syrian Jacobites who are distinct both nationally and ecclesiastically, and to the Syrian Orthodox of the Patriarchate of Antioch, now at Damascus, but it seems better to confine it to the Catholicos of the East and his people. Corresponding to each of these groups there is a Uniat section, maintaining its native rite but in union with Rome; they are commonly known respectively as Chaldeans, Syrian Uniats, and Melkites or Greek Syrian Catholics. Members of all of these ancient Churches have come to America, and five of them are represented by ecclesiastical organizations

—the Assyrians as mentioned above, the Jacobites by three congregations in the eastern states, the Orthodox by the Syrian Antiochian Church, the Greek Catholics by several parishes under the Roman Catholic Bishops, and the Chaldeans by one congregation recently organized in Chicago.

JUDAISM AND JEWISH COMMUNAL AFFAIRS

By Harry Schneiderman

Editor, *The American Jewish Year Book*

GENERAL

The march of events in Europe overshadowed and determined the course of Jewish communal affairs during 1940. Mass expulsions and brutal ghettoizing of Jewish populations in both eastern and western Europe, attended by terror and confiscation, imposed upon American Jews the responsibility of extending material and moral aid on an unprecedented scale to the victims of war and Nazi oppression. Relief operations, coordinated efforts at reconstruction and care of refugees, cooperation in the national defense program, and the strengthening of the religious and communal basis of Judaism in America marked the activities of the year. Palestine, drawn into the belligerent orbit, called upon the resources of the American Jewish community which had become practically the sole remaining support of the Jewish settlement there. At the same time, a marked decrease in the effectiveness of anti-Jewish agitation during 1940 was attributed to the growing realization that anti-Semitism constituted part of fifth-column efforts against democratic and national unity. As the United States tended to become the center of Jewish religious, communal, and cultural activities, there was a wide expansion of programs and coordination of efforts in these fields. It can be said that the most significant development of the year derived from the circumstance which forced upon the American Jewish community a position of leadership in Jewish life throughout the world.

POPULATION AND CONGREGATIONS

The final results of a survey of Jewish communities in the United States, conducted in connection with the U. S. Census of Religious Bodies, 1936-7, were published in *The American Jewish Year Book,* 1940-41. Reports received from 3,728 congregations and more than 25,000 other communal bodies in 4,694 cities and rural areas showed that in 1937 the Jewish population totaled almost 4,771,000. Of these, 4,441,000 reside in nearly 1,000 principal communities. A decline in the rate of growth of the American Jewish community was noted, immigration accounting for an increase of less than 100,000 during the decade ended 1937 compared with a net immigration of 320,000 during the preceding decade.

OVERSEAS ACTIVITIES

The scope and intensity of the European war during the first six months of 1940, followed by the widespread destruction, mass deportations, and imposition on the conquered lands of Nazi ideas and practices, created unprecedented problems of relief, emigration aid, and consideration of post-war reconstruction. The spread of Nazi rule encompassed 5,000,000 Jews who live in the subjugated or vassal states of Europe and deprived them of political, civil, and social rights. The Jews within these territories were also being systematically robbed of their possessions and deprived of their right to earn a livelihood in almost every field of endeavor. Virtual ghettoes were established in the large cities of Poland, and in western Europe whole Jewish communities, involving tens of thousands, have been deported from Alsace, Lorraine, Luxembourg, Baden, and the Palatinate to swell the number of refugees already in southern France, in many cases interned, looking frantically to their American co-religionists for rescue. Amid the universal suffering, the plight of European Jews, aggravated by persecution, discrimination, and anti-Semitic measures, was doubly hard.

Despite difficulties and restrictions imposed by war, relief agencies continued their work assisting thousands in Europe with food, shelter, clothing, medical aid, retraining and emigration aid. At its 26th annual meeting in New York on Dec. 9, the American Jewish Joint Distribution Committee reported that it had assisted about 1,000,000 in 50 countries throughout the world with relief and emigration aid during 1940. The total of $5,876,000 was appropriated for all its programs during the first 11 months of the year. Among its activities were the establishment of local relief agencies in the Vichy area to meet the minimum needs of more than 50,000 refugees; care of 12,000 refugees concentrated at Lisbon; and the continuance of 650 feeding stations and medical centers in Nazi-occupied Poland. The Joint Distribution Committee reported that its methods of relief distribution did not require sending American dollars into German-occupied territories. Other relief agencies, such as the HICEM (Hias-Ica) Emigration Association, which uses Joint Distribution Committee funds to buy transportation for emigrants, and the World Ort Union for retraining prospective refugees, continued their overseas operations. Rapidly expiring visas in the hands of thousands of refugees caught in the war area added to the difficulties of the refugee problem.

DISSOLUTION OF THE UNITED JEWISH APPEAL

The United Jewish Appeal for Refugee and Overseas Needs, which was established in 1939 to coordinate the fund-raising activities of the Joint Distribution Committee, the United Palestine Appeal, and the National Refugee Service, carried on its nationwide campaign in 1940 when more than $14,250,000 was raised for the three agencies. A record number of 3,371 communities participated in the 1940 campaign. Following the failure of negotiations concerning the allocation of campaign proceeds, it was announced on Dec. 24 that the agreement for a United Jewish Appeal, through which approximately $30,500,000 had been raised in the preceding two years, would not be renewed for 1941, during which all three agencies will conduct separate campaigns.

PALESTINE

Immediately following this announcement, the United Palestine Appeal administrative committee inaugurated a war emergency campaign of $12,000,000 for 1941 in support of Palestine as a major haven of refuge for homeless Jews. The material support made available through the United Palestine Appeal aided more than 20,000 Jewish refugees to enter Palestine during the first year of war, despite difficulties resulting from the war, restriction of land purchase, and the continuance by the British Government of a narrow immigration policy. Palestine's possibilities as a haven for oppressed Jews were temporarily reduced by the refusal of her government to allow entry of refugees from enemy countries.

American Zionist bodies protested vigorously against the restrictive land regulations of Feb. 28 and against the practice of refusing "illegal" immigrants permission to land and transporting them to British colonies for the duration of the war. Opinion was especially aroused at the time of the mysterious sinking in Haifa harbor on Nov. 26 of the refugee ship S. S. *Patria* resulting in numerous casualties. Britain explained her restrictive policy on the ground of war exigency. On the other hand, Jewish contingents in Palestine were admitted to active military participation upon the urgent request of the settlement, and a marked improvement in Arab-Jewish relations, stimulated by the common emergency of war, was noted. On the whole, Zionist opinion tended to shelve differences with Britain over Palestine policy in order to aid in the successful prosecution of the war against the common Nazi enemy.

PROBLEMS OF RECONSTRUCTION AND NATIONAL DEFENSE

Jewish organizations also turned their attention to the study of problems of reconstruction after the war. At its 33rd annual meeting on Jan. 21, the American Jewish Committee reported that it would engage in studies of migration, political status of Jews, and other international problems affecting the position of Jews in post-war Europe. A research institute was established for this purpose. The American Jewish Congress, at its national convention in February, urged American Jews to adopt a united approach toward the war and proposed the establishment of a coordinated body to formulate a program of reconstruction. The Congress throughout the year also urged American Jews to organize aid for Britain's war effort. At a conference called by the Congress in New York on Dec. 29, efforts were initiated to raise $400,000 for the purchase of 200 mobile kitchens for British use, and a Jewish section of the Inter-Faith Committee for Aid to the Democracies was organized. Other Jewish organizations, at their meetings, urged active participation in the national defense effort and many of them, especially those with Zionist affiliations, were active in aid to Britain.

Expansion of its social and welfare program for Jews in military service and full cooperation with U. S. defense agencies were initiated by the Jewish Welfare Board in October, while B'nai B'rith and other fraternal orders adapted their programs to the defense effort. Official recognition of religious needs of Jews in the armed forces came with the appointment of Rabbi David de Sola Pool of New York City to the General Committee of Army and Navy Chaplains, and the assignment to active service in the office of Chief of Chaplains of Rabbi Arieh Lev, First Lieutenant in the Chaplains Reserves.

REFUGEE SETTLEMENT

No marked expansion of American opportunities for refugee immigration occurred during 1940. The Dominican refugee settlement, whose formation was referred to in the previous review, became a fact when a contract was signed on Jan. 30 between the Dominican Republic Settlement Association, an American corporation, and the Dominican Republic granting to the Association a 26,000-acre tract of land at Sosua. About 100 have already settled there, and many more are awaiting transportation from the refugee centers of Europe. A review of Congressional legislation on immigration during 1940 reveals that no important legislative proposal affecting refugees was passed. The project to open Alaska to colonization, urged by Secretary of Interior Harold Ickes, expired in committee. Similarly, differences of opinion between officials of the State and Interior Departments blocked action on the proposal to open the Virgin Islands as a temporary haven for refugees. This proposal is still under consideration and has the support of Secretary Ickes as well as of the local government of the Islands.

Friction over delay in granting visas to political refugees, although they had been approved by the President's Advisory Committee on Political Refugees created for this purpose, led to the appointment on Dec. 9 of an interdepartmental "super-committee" to pass on visa applications recommended by the Advisory Committee. Replying to complaints of delay in granting visas, the State Department announced on Dec. 18 that it had acted favorably on all but 12 of 2,000 names of political refugees recommended by recognized refugee-aid committees and that 1,000 emergency visas had already been issued. It was announced at the same time that quota places which could not be used by persons to whom they had been assigned (exit permits were refused to many holders of visas by Nazi or Nazi-dominated European authorities) would be unblocked and redistributed.

INTER-GROUP RELATIONS

Revelations by government agencies and by the press of Nazi propaganda activities in the United States served to bolster a growing realization by American public opinion that anti-Semitic agitation was being used as a smoke-screen for an attack on national unity by anti-democratic forces. As a result, the effectiveness of anti-Jewish movements struck a new low during 1940. The tie-up between such movements and Nazi designs in America became evident. Although anti-Jewish groups and individuals continued their agitation, frequently linked with anti-British propaganda, anti-Jewish disturbances at street meetings which had occurred in a few large cities in 1939 declined considerably. Following the arrest in January of 17 members of a group connected with the "Christian Front" in Brooklyn on charges of seditious conspiracy and theft of government property, Father Charles E. Coughlin, whose utterances over the radio and in his magazine *Social Justice* were widely held responsible for "Christian Front" agitation, suspended his anti-Semitic campaign. Coughlin went off the air in May and did not resume his broadcasts during the rest of 1940. *Social Justice,* however, resumed its vicious anti-Jewish line with the conclusion of the trial in June, when the jury failed to convict the accused Christian Fronters. Later issues, without ceasing to indulge in Jew-baiting, concentrated on spreading the anti-British line.

The emergence of anti-Semitism as a political platform, in imitation of Nazi practice, offered a novel field for such elements. During the spring primary elections several notorious Jew-baiters were decisively defeated. One of these was Representative Jacob Thorkelson (Rep. Mont.), who had abused the pages of the *Congressional Record* by the insertion of stock anti-Jewish diatribes taken from Nazi sources who sought renomination for Congress. The most vociferous campaign was carried on in New York City by Joseph E. McWilliams, leader of the Christian Mobilizers, as candidate for Congress on his own American Destiny Party ticket, and would-be candidate on the Republican ticket. McWilliams was finally and decisively defeated in the Republican Congressional primary in the supposedly pro-Nazi Yorkville district. His petition to run as an independent candidate was ruled out by the Board of Elections because of an insufficient member of genuine signatures.

Attempts to inject the religious issue into the Presidential campaign, despite its repudiation by President Roosevelt and Republican nominee Wendell L. Willkie, proved abortive. Jewish communal leaders protested the spurious plea to the "Jewish vote," asserting that Jews, like other religious groups, would vote on political not religious issues. Overtones of anti-Semitic appeals in campaign literature were attributed to well-known anti-democratic and Nazi sources; no responsible party officials were implicated. Following the elections, several of the agencies which had exploited the occasion for anti-Jewish agitation suspended activities. Nevertheless, an undercurrent of Nazi-inspired propaganda, insinuating that Jews were responsible for the national policy of increased aid to Britain and resistance to Nazi aggression, was evident as the year closed.

In his annual report, submitted to the National Conference of Christians and Jews in May, Director Everett R. Clinchy noted a decrease in anti-Semitism during the preceding year, which he ascribed to the determination shown by religious leaders "to uproot anti-Semitism from the Christian heritage" and to increased awareness that "anti-Semitism is an instrument in the Trojan Horse tactics used to divide people." The National Conference of Christians and Jews, which continued to be the foremost among groups promoting inter-faith understanding, carried on with its expanded program of inter-faith activities through the medium of church services, inter-faith rallies, school exercises, radio programs and other events. Increased cooperation and growing good fellowship among Protestants, Catholics, and Jews was reported by Dr. Clinchy to the semi-annual meeting of the National Conference of Christians and Jews in December.

INTER-FAITH HARMONY

The note of democratic cooperation of all groups for national unity, which was repeatedly sounded by President Roosevelt and other public officials during the year, found an echo in many instances of inter-faith harmony. Special united services of all faiths were held throughout the country on Thanksgiving Day, while in many colleges of the country Inter-faith Councils were organized, those at Columbia University and Brooklyn College drawing particular attention. At the University of Illinois, the Edward Chauncey Baldwin Memorial fellowship, to be granted in recognition of student leadership in inter-faith activities, was established by the B'nai B'rith Hillel Foundation in December. Inter-faith cooperation in solving the unemployment problem as a basic factor in making democracy work was discussed by religious leaders at the Inter-faith Conference on Unemployment in Washington in June. Local communities established discussion councils and study groups on methods of stimulating inter-group understanding.

Organizations to combat intolerance and group hatred and to protect democratic ideals, such as the Council Against Intolerance in America and the Committee of Catholics for Human Rights, as well as many Protestant bodies, continued their activities. The year also witnessed the establishment of other pro-democracy bodies, concerned with the promotion of inter-group good-will and understanding, chief among which was the Council for Democracy, headed by Raymond Gram Swing, which mapped out a program of education to "define and revitalize the concept of democracy for the American people."

RELIGION AND DEMOCRACY

Repercussions of the cataclysmic events abroad forced American Jews not only to deal with the central problem of providing relief for the victims of war but also to broaden and strengthen the bases of Jewish communal and religious life in this country. The realization that the United States is one of the few remaining countries where Judaism is free to develop its institutions and to preserve its cultural traditions in a free atmosphere resulted in an intensification of religious, educational, Zionistic, and other cultural activities.

The role of religion in democracy and the necessity of strengthening spiritual foundations during this critical period were stressed by religious leaders and in the programs of congregational and rabbinical bodies. The First Eastern Seaboard Convention, representative of other regional meetings, of the Union of American Hebrew Congregations (Reform), in Philadelphia Jan. 13-14, discussed the function of religion in preserving democracy, employing as its theme "The Synagogue and the American Way." At its annual meeting in Cincinnati, the executive board of the Union made plans for the 37th Council to be held in Detroit in May, 1941. The relation between religion and democratic development also marked the annual convention of the United Synagogue of America (Conservative) in Atlantic City, May 12-13. Plans were adopted to expand and coordinate religious education. Religious bodies also expressed approval of the national defense policy and pledged continued support of programs for the achievement of social justice. The

Synagogue Council, representing Conservative, Orthodox, and Reform groups, declared its support of President Roosevelt's move for a just peace through the mobilization of religious forces. On Sept. 17, the Synagogue Council announced the election of Rabbi Edward L. Israel of Baltimore as president, and reported the establishment of a Statistical Bureau to compile data on Jewish congregations. In New York a "Back to the Synagogue" movement was launched on Oct. 21 by leaders of orthodox congregations under the auspices of the Mizrachi Organization (Religious-Zionist).

SPIRITUAL LEADERSHIP IN NATIONAL DEFENSE

At its fifty-first annual convention at Charlevoix, Mich., June 18-23, the Central Conference of American Rabbis (Reform) discussed the role of spiritual leadership in national defense. Reaffirming concern with Israel's historic ideal of peace, the report of the Committee on International Peace advocated a union of Jewish forces to secure civil rights for disfranchised Jews upon the restoration of Peace. The Conference also approved the report of its social Justice Commission calling for the maintenance of civil liberties and the expansion of liberal legislation. Similar resolutions marked the 40th annual meeting of Rabbinical Assembly of America (Conservative) in Detroit, June 25-28. The Assembly adopted an inspiring six-point declaration reaffirming its faith in democracy and the maintenance of civil rights, and calling for increased efforts in behalf of Palestine. The contribution of Judaism to American democratic ideals was stressed at the sixth annual convention of the Rabbinical Council (liberal Orthodox) in New York, August 19-20, while at its first convention since 1935, the Assembly of Orthodox Rabbis (Keneseth Harabanim) considered the problems of rabbinical participation in the military training program and aid to refugee children. Another orthodox body, the Union of Orthodox Rabbis, gave its attention to problems of relief for rabbinical scholars and of religious education during its convention in Far Rockaway, L. I., Nov. 11-13.

RELIGIOUS EDUCATION

Religious education showed marked progress during 1940. By December, the Jewish Education Committee of New York, to which $1,000,000 had been granted by the Friedsam Foundation in Nov. 1939 for the promotion of Jewish religious education in New York City, completed its first year of pedagogical aid to New York's existing religious schools. In October, the Committee absorbed the Jewish Education Association. With a view to improving the quality of Jewish education, the Committee engaged in a number of projects extending pedagogic supervision to every type of school, establishing a library for teachers, experimenting with Home Study Groups, improving the status of teachers, and enlisting the support of community groups. Impetus to religious education also came from the educational programs adopted by various religious bodies. In December 1939, the United Synagogue outlined an intensive educational program, while increased aid for schools was projected by the Agudath Israel and other orthodox bodies. The National Federation of Temple Brotherhoods, which had taken over supervision of the work of the Jewish Chautauqua Society, extended the program of the Society to the colleges of the country.

The American Association for Jewish Education, organized in 1939 to serve as a coordinating agency for bureaus of Jewish education, held its first annual meeting in Atlantic City on May 5 and adopted resolutions calling for the establishment of a field service to aid local communities in advancing standards of instruction, organization of an information service, and cooperation with the National Council for Jewish Education in conducting Jewish Education Month in October. Publication of the *Jewish Education News Letter* was begun in January.

The Jewish Theological Seminary announced courses in theology and the relation of religion to democratic society for the 1940-41 session of the Institute for Religious Studies (formerly the Institute of Interdenominational Studies). Establishment of a National Academy for Adult Jewish Studies was also planned by the Seminary to operate through 100 affiliated institutes for adult Jewish education throughout the country.

ANNIVERSARIES

Religious leaders and public officials joined the nation in celebrations marking the 200th anniversary of the Philadelphia Congregation Mikveh Israel, second oldest congregation in the country, held during the last week in November. Another congregation of the same name, Mickve Israel in Savannah, Ga., the oldest Jewish congregation in the South, celebrated its sesquicentennial anniversary, Nov. 29. The congregation was actually founded more than 200 years ago, but November 1940 marked the 150th anniversary of the granting of its charter under the laws of Georgia. Another notable anniversary was the centennial of the founding of the Reform Congregation Mishkan Israel in New Haven, Dec. 2-9, celebrated by civic and religious exercises and an exhibition of Judaica at the Yale University Library.

SOCIAL WELFARE

The tremendous task imposed by the increased burden of overseas relief, refugee programs, and Palestine development held the center of attention of Jewish welfare agencies during 1940. Progress in the domestic field was, however, as important as ever. The rapid growth of community councils, welfare funds, and other local protective and fund-raising agencies, noted in the review of the past year, continued. The 1939 *Yearbook of Jewish Social Work,* published by the Council of Jewish Federations and Welfare Funds in June, 1940, showed that the volume of service provided by homes for the aged, general hospitals and clinics, under Jewish auspices, was at its peak during the year.

Welfare fund campaigns in 1940 raised approximately as much as they did in 1939, according to reports received by the Council. The total was more than $10,000,000.

The seventh general assembly of the Council, held in Detroit, Jan. 27-29, was concerned principally with the financing of overseas and refugee needs, but also devoted considerable attention to the coordination of civic-protective work, Jewish education, and the development of Palestine. Problems of social and individual welfare facing American Jews were also discussed at the National Conference of Jewish Social Welfare in Pittsburgh, May 22-23. Growing interest in vocational problems represented a relatively new trend. In June, the Jewish Occupational Council completed its first year of activity as the clearing house for Jewish organizations engaged in occupational guidance and as an information center for vocational problems.

NATIONAL REFUGEE SERVICE

Financial aid in various forms, assistance in resettlement throughout the country, citizenship instruction and language-training were among the services performed by the National Refugee Service in the first year of its existence as the coordinating functional agency for refugees in the United States. Relieved of the burden of fund-raising through its inclusion in the United Jewish Appeal, the National Refugee Service expanded its administrative organization, perfected its resettlement activities in cooperation with other settlement agencies and local communities, and showed marked progress in meeting problems of housing and vocational training. Up to September the N.R.S. resettled 2,100 family units comprising 3,771 individuals in communities throughout the country. By the end of September resettlements were 74 per cent ahead of the same period in 1939. Toward the end of the year, however, there was a falling off in the rate of resettlement due to the fall in immigration, while a considerable portion of remaining immigration had been shifted to the West Coast.

B'NAI B'RITH

B'nai B'rith increased its membership by 19,000 and expanded its welfare activities, according to the annual report submitted to the 96th annual meeting of its executive committee in Tampa, Florida, on Feb. 4. Aid to Palestine through support of the Jewish National Fund and the Youth Aliyah (child refugee settlement in Palestine), as well as contributions to war relief and refugee aid were continued. Creation of a Women's Supreme Council of B'nai B'rith as a national coordinating body for women's grand lodges was announced in October. The activities of other fraternal organizations reflected the concern of American Jews with problems of overseas relief, the preservation of democracy and aid to Palestine. Notable events included the 40th anniversary meeting of the Workmen's Circle in Madison Square Garden, New York City, on May 5, and the convention of the Jewish National Workers Alliance in Detroit, May 30-June 2, which adopted a quota of $250,000 for the next *Gewerkschaften* (labor unions) campaign which supports activities of the *Histadruth* (Labor Federation) in Palestine.

ZIONIST ACTIVITIES

In addition to Zionist activities influenced by the critical political and economic situation in Palestine, the year witnessed the intensification of efforts to mobilize Zionist opinion in promoting the economic, medical, and cultural development of the Jewish settlement. The arrival of Dr. Chaim Weizmann in January stimulated the activities of the Zionist Organization of America aimed at marshaling American resources to meet the war emergency and the needs of refugee immigration to Palestine. Plans for reorganization of Zionist administration and a change of leadership resulted from the election of Edmund I. Kaufmann of Washington, D.C. as president at the 43rd annual convention in Pittsburgh, June 30-July 2. The Zionist Organization of America initiated a campaign for increased membership and expanded its program with the introduction of a Department of Youth and Education.

Expressing its determination to safeguard democracy in America and to help Britain's fight in Palestine, Hadassah, Women's Zionist Organization, at its convention in Cincinnati, Oct. 30-Nov. 3, adopted a budget of $1,150,000 to cover the cost of expanded medical and war emergency needs and for continuation of Youth Aliyah. Together with Junior Hadassah, which celebrated its 20th anniversary coincident with the 80th birthday of Henrietta Szold, Baltimore-born founder of Hadassah, a united Hadassah membership of 94,000 was reached during the year. At its 23rd annual convention in Baltimore, May 19-21, the Mizrachi Organization (Orthodox Zionist) voted to establish a colony in honor of Dr. Isaac Herzog, Chief (Ashkenazic) Rabbi of Palestine, while the Mizrachi Women's Organization was active in raising funds for the accommodation of Orthodox refugee girls in Palestine. Coincident with its 16th annual convention in New York, Nov. 23-24, the National Labor Committee for Palestine celebrated the 20th anniversary of the founding of the *Histadruth* (Palestine Federation of Labor) and opened a campaign for funds to be used in general Palestine development. Other Zionist bodies carried on with their activities, the Jewish National Fund reporting continued land purchases despite restrictions.

DR. CYRUS ADLER

American Jewry was deprived of its foremost communal and religious leader with the death of Dr. Cyrus Adler on April 7. As the most distinguished figure in American Judaism for a generation, Dr. Adler was, at the time of his death, president of the American Jewish Committee, of the Jewish Theological Seminary, and of Dropsie College for Hebrew and Cognate Learning. Chosen as the spokesman for American Judaism in the interfaith cooperative peace efforts launched by President Roosevelt in December 1939, Dr. Adler sent copies of the President's peace appeal to 2,000 American rabbis in January. To take his place, the President, on May 9, named Prof. Louis Finkelstein, who had been chosen Dr. Adler's successor as president of the Jewish Theological Seminary.

PERIODICAL PUBLICATIONS

Advance (Congregational)
14 Beacon Street, Boston.
America (Jesuit)
53 Park Place, New York City.
American Hebrew
48 West 48th Street, New York City.
Catholic Action
1312 Massachusetts Ave. N.W., Washington, D.C.
Catholic Review
21 West Franklin Street, Baltimore, Md.
Catholic World
401 West 59th Street, New York City.
Christendom
297 Fourth Ave., New York City.
Christian Advocate
150 Fifth Ave., New York City.
Christian Century
95 Madison Ave., New York City.
Christian Herald
419 Fourth Ave., New York City.
Christian Leader (Universalist)
16 Beacon Street, Boston.
Christian Register (Unitarian)
25 Beacon Street, Boston.
Churchman (P.E.)
425 Fourth Ave., New York City.
Church Management
Auditorium Bldg., Cleveland, O.
Commonweal (R.C.)
386 Fourth Ave., New York City.
International Journal of Religious Education
203 N. Wabash Ave., Chicago.
Living Church (P.E.)
744 North Fourth Street, Milwaukee, Wis.
Lutheran Herald
425 S. Fourth Street, Minneapolis, Minn.
Presbyterian Tribune
70 Fifth Ave., New York City.
Religion, A Digest
2401 Military Road, Arlington, Va.
Watchman-Examiner (Baptist)
23 East 26th Street, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

NATIONAL CHURCHES

AMERICAN BAPTIST HISTORICAL SOCIETY, Chester, Pa.
AMERICAN UNITARIAN ASSN., 25 Beacon St., Boston, Mass.
BOARD OF DIRECTION OF THE GENERAL SYNOD OF THE REFORMED CHURCH IN AMERICA, 156 Fifth Ave., New York City.
CHRISTIAN SCIENCE CHURCH, 11 W. 42nd St., New York City.
CONGREGATIONAL CHRISTIAN GENERAL COUNCIL, 287 Fourth Ave., New York City.
FREE CHURCH OF AMERICA, 25 Beacon St., Boston, Mass.
FREETHINKERS OF AMERICA, INC., 317 E. 34th St., New York City.
FRIENDS' GENERAL CONFERENCE OF THE RELIGIOUS SOCIETY OF FRIENDS, 1515 Cherry St., Philadelphia, Pa.
GENERAL CONFERENCE OF SEVENTH-DAY ADVENTISTS, 6840 Eastern Ave., N.W., Takoma Park, Washington, D.C.
GENERAL COUNCIL OF THE PRESBYTERIAN CHURCH IN THE U.S.A., 156 Fifth Ave., New York City.

NATIONAL LUTHERAN COUNCIL IN AMERICA, 39 E. 35th St., New York City.

NATIONAL SPIRITUALIST ASSN., 600 Penn. Ave., S.E., Washington, D.C.

NORTHERN BAPTIST CONVENTION, 152 Madison Ave., New York City.

SOCIETY FOR ETHICAL CULTURE OF NEW YORK, 2 W. 64th St., New York City.

THEOSOPHICAL SOCIETY OF AMERICA, Wheaton, Ill.

UNION OF AMERICAN HEBREW CONGREGATIONS, 34 W. 6th St., Cincinnati, Ohio.

UNION OF ORTHODOX JEWISH CONGREGATIONS OF AMERICA, 305 Broadway, New York City.

UNITED LUTHERAN CHURCH IN AMERICA, 39 E. 35th St., New York City.

UNITED SYNAGOGUE OF AMERICA, Broadway and 122nd St., New York City.

UNIVERSALIST GENERAL CONVENTION, INC., 16 Beacon St., Boston, Mass.

VEDANTA SOCIETY, 34 E. 71st St., New York City.

VOLUNTEERS OF AMERICA, 34 W. 28th St., New York City.

INTERNATIONAL ORGANIZATIONS

ASSOCIATION FOR THE PROMOTION OF CHRISTIAN UNITY, Mission Bldg., Indianapolis, Ind.

BAPTIST WORLD ALLIANCE, Bates College, Lewiston, Me.

CENTRAL BUREAU OF EVANGELICAL CHURCHES IN EUROPE, 297 Fourth Ave., New York City.

COMMITTEE ON FRIENDLY RELATIONS AMONG FOREIGN STUDENTS, 347 Madison Ave., New York City.

ECUMENICAL METHODIST CONFERENCE, 720 Omaha Bank Bldg., Omaha, Neb.

INTERNATIONAL ASSN. OF DAILY VACATION BIBLE SCHOOLS, 297 Fourth Ave., New York City.

INTERNATIONAL ASSOCIATION FOR THE PROMOTION OF LIBERAL CHRISTIANITY AND RELIGIOUS FREEDOM, 25 Beacon St., Boston, Mass.

INTERNATIONAL CONGREGATIONAL COUNCIL, 287 Fourth Ave., New York City.

INTERNATIONAL COUNCIL OF RELIGIOUS EDUCATION, 203 N. Wabash Ave., Chicago, Ill.

INTERNATIONAL SOCIETY OF CHRISTIAN ENDEAVOR, 41 Mt. Vernon St., Boston, Mass.

LUTHERAN WORLD CONVENTION, 39 E. 35th St., New York City.

NEAR EAST COLLEGE ASSOCIATION, INC., 50 West 50th St., New York City.

RELIGIOUS EDUCATIONAL ASSOCIATION, 59 E. Van Buren St., Chicago, Ill.

UNIVERSAL CHRISTIAN COUNCIL ON LIFE AND WORK, 297 Fourth Ave., New York City.

WESTERN SECTION OF ALLIANCE OF REFORMED CHURCHES THROUGHOUT THE WORLD HOLDING THE PRESBYTERIAN SYSTEM, 226 W. Mowry St., Chester, Pa.

WORLD CONFERENCE FOR INTERNATIONAL PEACE THROUGH RELIGION, 70 Fifth Ave., New York City.

WORLD STUDENT CHRISTIAN FEDERATION, 347 Madison Ave., New York City.

WORLD'S SUNDAY SCHOOL ASSN., 156 Fifth Ave., New York City.

INTERCHURCH ORGANIZATIONS

AMERICAN BIBLE SOCIETY, Park Ave. and 57th St., New York City.

AMERICAN SUNDAY SCHOOL UNION, 1816 Chestnut St., Philadelphia, Pa.

AMERICAN TRACT SOCIETY, 21 W. 46th St., New York City.

CHAPLAIN'S AID ASSN., 401 W. 59th St., New York City.

CHRISTIAN CO-OPERATIVE FELLOWSHIP IN NORTH AMERICA, 5757 University Ave., Chicago, Ill.

CHURCH PEACE UNION, 70 Fifth Ave., New York City.

COMMUNITY CHURCH WORKERS OF U.S.A., 77 W. Washington St., Chicago, Ill.

CONFERENCE OF THEOLOGICAL SEMINARIES AND COLLEGES IN THE U.S.A. AND CANADA, Gettysburg, Pa.

EPWORTH LEAGUE OF THE METHODIST EPISCOPAL CHURCH, 740 Rush St., Chicago, Ill.

FEDERAL COUNCIL OF THE CHURCHES OF CHRIST IN AMERICA, 297 Fourth Ave., New York City.

Fellowship of Christian Co-operation, 2929 Broadway, New York City.

Free Church of America, 25 Beacon St., Boston, Mass.

National Council of Protestant Episcopal Churches, 281 Fourth Ave., New York City.

National Religion and Labor Foundation, 304 Crown St., New Haven, Conn.

AUXILIARY ORGANIZATIONS

Catholic Church Extension Society of the U.S.A., 306 N. Michigan Ave., Chicago.

Catholic Guardian Society, 485 Madison Ave., New York City.

Catholic Protective Society, 477 Madison Ave., New York City.

Church League for Industrial Democracy, 135 Liberty St., New York City.

Community Church Workers of the U.S.A., The, 1302 Chicago Temple, 77 W. Washington St., Chicago, Ill.

Lord's Day Alliance, 156 Fifth Ave., New York City.

National Conference of Christians and Jews, 300 Fourth Ave., New York City.

Woman's Christian Temperance Union, 1730 Chicago Ave., Evanston, Ill.

Woman's National Sabbath Alliance, 156 Fifth Ave., New York City.

Young Men's Christian Assn., 347 Madison Ave., New York City.

Young Men's Hebrew Assn., 220 Fifth Ave., New York City.

Young Woman's Christian Assn., 600 Lexington Ave., New York City.

Young Woman's Hebrew Assn., 31 W. 110th St., New York City.

RELIGIOUS PUBLICATIONS

American Baptist Historical Society, Upland Ave., Chester, Pa.

American Baptist Publication Society, 1701 Chestnut St., Philadelphia, Pa.

American Bible Society, Park Ave., & 57th St., New York City.

American Tract Society, 21 W. 46th St., New York City.

Chicago Tract Society, 440 S. Dearborn St., Chicago, Ill.

Gideons, 202 S. State St., Chicago, Ill.

National Testament and Tract League, 200 Kellogg Bldg., Washington, D.C.

Pocket Testament League, 156 Fifth Ave., New York City.

Religious Educational Assn., 59 E. Van Buren St., Chicago, Ill.

Society for the Propagation of the Faith, 462 Madison Ave., New York City.

MISSIONARY

Agricultural Missions Foundation, 156 Fifth Ave., New York City.

American Board of Commissioners for Foreign Missions, 14 Beacon St., Boston, Mass.

American McAll Assn., 112 E. 16th St., Philadelphia, Pa.

American Mission to Lepers, 156 Fifth Ave., New York City.

Christian and Missionary Alliance, 260 W. 44th St., New York City.

Committee of Reference and Council, 156 Fifth Ave., New York City.

Council of Women for Home Missions, 297 Fourth Ave., New York City.

Home Missions Council, 297 Fourth Ave., New York City.

International Missionary Council, 156 Fifth Ave., New York City.

Missionary Education Movement of the United States and Canada, 156 Fifth Ave., New York City.

National Council of Jewish Women, 1819 Broadway, New York City.

Near East Relief, 17 W. 46th St., New York City.

Student Volunteer Movement for Foreign Missions, 156 Fifth Ave., New York City.

Woman's Union Missionary Society, 45 Astor Place, New York City.

PART SIX

SCIENCE—PRINCIPLES AND APPLICATION

DIVISION XVIII

MATHEMATICS AND ASTRONOMY

MATHEMATICS

By Charles N. Moore*

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AMERICAN MATHEMATICAL SOCIETY

Meetings.—During 1940 the American Mathematical Society met in New York City in February and October; in Chicago, Washington, D.C., and Berkeley, Calif. in April; in Seattle, Wash. in June; in Hanover, N.H. in September; in Detroit and Los Angeles in November; and in Baton Rouge, La. in December.

Invited Addresses.—The usual number of special addresses, presented by authorities in the various fields on invitation of the Society, were on the programs of the various meetings. At the February meeting in New York, Prof. B. O. Koopman of Columbia University spoke on the subject: "The bases of probability." At the April meeting in Chicago, Prof. W. J. Trjitznsky of the University of Illinois delivered the annual Symposium Lecture on the topic: "General theory of functions of a complex variable." At the April meeting in Washington Prof. Wladimir Seidel of the University of Rochester spoke on the subject: "Univalent and multivalent functions." At the June meeting in Seattle, held in connection with the summer meeting of the American Association for the Advancement of Science, Prof. John von Neuman of the Institute for Advanced Study delivered an address entitled: "On operator rings and dimension." At the September meeting in Hanover, Prof. Leonard Carlitz of Duke University spoke on the topic: "Arithmetic of polynomials in a Galois field."

At the November meeting in Detroit addresses were delivered by Prof. Barkley Rosser of Cornell University and Prof. H. S. Wall of Northwestern University on the respective subjects: "Many-valued logics" and "Some recent developments in the theory of continued fractions." At the November meeting in Los Angeles, Dr. A. C. Schaeffer of Stanford University spoke on the topic: "Inequalities of A. Markoff and S. Bernstein for polynomials and related functions." There was also included a symposium on aeronautics under the direction of Prof. H. Bateman of the California Institute of Technology in connection with which Prof. J. Bjerkness of the University of California at Los Angeles gave an address on the mathematics of meteorology. At the meeting in Baton Rouge, designated as the Forty-seventh Annual Meeting of the Society, Prof. G. C. Evans of the University of California delivered his retiring presidential address on the topic: "Surfaces of minimum capacity." Also, at the invitation of the Program Committee, Prof. Saunders MacLane of Harvard University and Dr. Leo Zippin of Queen's College spoke on the respective subjects: "Extensions of groups" and "Topology of rigid motions."

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* The author wishes to acknowledge with thanks the collaboration of Prof. N. Jacobson, University of North Carolina; Prof. R. J. Walker, Cornell University; and Prof. S. S. Wilks, Princeton University, who furnished material concerning advances in algebra, geometry, and statistics respectively.

Special Features of the Summer Meeting.—Following a well established custom in connection with summer meetings of the Society a series of Colloquium Lectures was presented at Hanover in September. The subject of the lectures was "Analytic Topology" and the chosen lecturer was Prof. G. T. Whyburn of the University of Virginia.

Furthermore, at the time of the summer meeting, a report was submitted by the War Preparedness Committee. This was a joint committee of the Society and the Mathematical Association of America, under the chairmanship of Prof. Marston Morse of the Institute for Advanced Study. The purpose of the committee was to make a thoroughgoing study of the various ways in which the mathematicians of the country can be of assistance in connection with national defense. In the report three main lines of activity were specified: (1) The solution of mathematical problems essential for military or naval science or rearmament; (2) The preparation of mathematicians for research essential in connection with activity (1); (3) The strengthening of undergraduate mathematical education in our colleges to the point where it affords adequate preparation in mathematics for military and naval services of any nature.

Fuller accounts of the report of the committee may be found in the September number of the *Bulletin of the American Mathematical Society* and the August-September number of the *American Mathematical Monthly.*

Research Papers.—In connection with the various meetings of the Society several hundred research papers dealing with special topics of investigation were presented by various members. Abstracts of these papers may be found in the official journal, the *Bulletin of the American Mathematical Society.*

MATHEMATICAL ASSOCIATION OF AMERICA

The Mathematical Association held a summer meeting in Hanover, N.H. in conjunction with the summer meeting of the American Mathematical Society, referred to above, and a meeting of the Institute of Mathematical Statistics. It held its twenty-fifth annual meeting at Baton Rouge, La. in conjunction with the annual meeting of the American Mathematical Society, already mentioned.

At the meeting in Hanover a program of invited addresses was presented. The speakers and their subjects were as follows: Prof. R. E. Langer of the University of Wisconsin, "Alexandria, a shrine of mathematics"; Prof. B. H. Brown of Dartmouth College, "Simple examples of limiting processes in probability"; Dr. G. R. Stibitz of Bell Telephone Laboratories, "Calculating with telephone equipment"; Prof. Marston Morse of the Institute for Advanced Study, "War preparedness among mathematicians"; Dr. L. S. Dederick of Aberdeen Proving Ground, "Mathematical methods in ballistics"; R. H. Kent of Aberdeen Proving Ground, "Some hydrodynamical problems related to ballistics"; Prof. Richard von Mises of Harvard University, "Mathematical problems useful for aviation."

At the meeting in Baton Rouge a program of invited addresses was presented, including the following: "A program for college geometry" by Prof. A. W. Tucker, Princeton University; "Some aspects of differential geometry in the large" by Prof. G. A. Hedlund, University of Virginia; "On groups of homeomorphisms" by Prof. Deane Montgomery, Smith College.

In addition to the two national meetings, members of the Association held some 20 sectional meetings, including individual states or groups of states, in various parts of the country. Accounts of these sectional meetings may be found in the official journal, the *American Mathematical Monthly*.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Ordinarily the American Mathematical Society and the Mathematical Association of America hold their annual meetings at the same place where the American Association for the Advancement of Science is convening. This year found an exception, since the latter organization was meeting in Philadelphia. Consequently, the program of the mathematical section of the A.A.A.S., Section A, was amplified for the occasion. There was a morning session for the presentation of research papers on Dec. 27, 1939. On the afternoon of the same day Prof. Marston Morse of the Institute for Advanced Study, retiring chairman of Section A, delivered an address on the subject: "A mathematical theory of equilibrium with applications to minimal surfaces." On Dec. 28 there was a joint session of Section A with the Association for Symbolic Logic and the American Philosophical Society.

NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS

The National Council held a summer meeting in Milwaukee, Wis. and a meeting in Baton Rouge, La. in connection with the meetings of the American Mathematical Society and the Mathematical Association of America. At the summer meeting the general theme was: "How mathematics serves our community." At the meeting in Baton Rouge, the program dealt with the improvement of the teaching of mathematics, particularly in secondary schools. One of the sessions was a joint meeting with the Mathematical Association of America.

SYMPOSIUMS AND CONFERENCES

University of Notre Dame.—The fourth annual mathematical symposium at the University of Notre Dame was held April 10-11, 1940, on the foundations of topology. The following papers were presented: "On contiguous points" by Prof. R. L. Moore of the University of Texas; "The topology of lumps" by Prof. Karl Menger of Notre Dame University; "Classification of topological functions" by Prof. E. W. Chittenden of the University of Iowa; "The equal generality of 'convergence,' 'closure,' and 'neighborhoods'" by Dr. J. W. Tukey of Princeton University; "Partially ordered sets and topology" by Dr. A. N. Milgram of Notre Dame University; "The foundations of algebraic topology" by Prof. Solomon Lefschetz of Princeton University; "Lattices and connectivity" by Dr. Henry Wallman of the Institute for Advanced Study.

University of Michigan.—A conference in topology was held at the University of Michigan on June 24-July 6, 1940. The following lectures were given: "Triangulated manifolds and differentiable manifolds" by S. S. Cairns, Queens College; "Topological functions" by E. W. Chittenden, University of Iowa; "Uniformity in topological space" by L. W. Cohen, University of Kentucky; "Extension and classification of continuous mappings" by Samuel Eilenberg, University of Michigan; "The role of local separating points in certain problems of continua structure" by O. G. Harrold, University of Virginia; "Abstract complexes" by Solomon Lefschetz, Princeton University; "Extensions of homeomorphisms in the plane" by Saunders MacLane, Harvard University; "Periodic and nearly periodic transformations" by P. A. Smith, Barnard College; "Regular cycles in compact spaces" by N. E. Steenrod, University of Chicago; "Topology of differentiable manifolds" by Hassler Whitney, Harvard University; "Uniform local connectedness" by R. L. Wilder, University of Michigan; "Topological transformation groups and foundations of geometry" by Leo Zippin, Queens College. It is planned to have the University of Michigan

Press issue, during 1941, a volume containing these lectures, as well as abstracts of a number of papers which were delivered during the conference.

University of Cincinnati. — A mathematical symposium was held at the University of Cincinnati on Nov. 9. The speakers were Prof. G. A. Bliss of the University of Chicago and Prof. Marston Morse of the Institute for Advanced Study, and their respective topics were "Functions of lines in ballistics," and "Some new methods and problems in minimal surface theory."

ANALYSIS

Integration.—The fundamental limiting process known as integration found its origin in the so-called "method of exhaustions" of the ancient Greek mathematicians. In spite of its antiquity, however, the theory of integration is still in a state of active development. The stimulus furnished about the turn of the century by the contributions of Lebesgue proved to be no "flash in the pan" but has led to a steady expansion of ideas and a steady flow of generalization. Recent work in this line has centered about the extension of the notion of an integral from ordinary space to various types of abstract spaces, in particular to those known as Banach spaces. Such work has many points of contact with the theory developed by the late E. H. Moore and termed by him "General Analysis." Important contributions to the theory of integration and related topics along the lines indicated may be found in the following papers published during 1940: "The theory of integration" by G. B. Price, "Integration in a convex linear topological space" by R. S. Phillips, "Linear operations on summable functions" by Nelson Dunford and B. J. Pettis, "Continuous additive functionals on the space (BV) and certain subspaces" by C. R. Adams and A. P. Morse. All of these appeared in the Transactions of the American Mathematical Society and "Integration in abstract space" by R. L. Jeffery appeared in the *Duke Mathematical Journal*.

Summability.—In the domain of summation methods for divergent series, a paper by H. L. Garabedian and H. S. Wall, published in the *Transactions* of the American Mathematical Society, contains a variety of interesting results. This paper is concerned with the relationship between the methods of summation associated with the name of Hausdorff and certain corresponding continued fractions. Among other results there are obtained necessary and sufficient conditions for the regularity of Hausdorff transformations of a certain type in terms of the related continued fraction. In the same general field of summability of series, R. P. Agnew, in an article in the *American Journal of Mathematics,* obtains some theorems of Tauberian type concerning double series summable by the methods of Cesaro. A Tauberian theorem is one which enables us to infer the convergence of a series from its summability and certain additional restrictive conditions. In the domain of application of summability methods to important classes of special series, O. Szasz, in an article in the *Transactions* of the American Mathematical Society, has obtained new criteria for the strong summability of Cesaro type of the Fourier series.

Approximation.—A number of papers dealing with the degree of approximation to a limit function by means of sequences of polynomials, sequences of rational functions, and sequences of analytic functions appeared during the year. A paper in the *Duke Mathematical Journal* by J. L. Walsh and W. E. Sewell deals with the relationship between the degree of approximation to a limit function f(z) over a closed set of points, E, in the complex plane, and the continuity properties of f(z) on the boundary C of E. Two papers by J. L. Walsh in the *Transactions* of the American Mathematical Society deal with the determination of degrees of approximation to an analytic function by means of sequences of rational functions and sequences of analytic functions.

Measure.—In a paper appearing in the *Duke Mathematical Journal,* A. P. Morse and J. F. Randolph have discussed a new method of assigning a linear measure to sets of points that do not lie on a line. The method used by them is based on ideas suggested by the late D. C. Gillespie, and they accordingly term their concept "Gillespie measure". Examples are given to show that the new definition possesses certain advantages over previous definitions.

Function Theory.—Two papers that appeared in the *Duke Mathematical Journal* by J. W. Calkin and C. B. Morrey, Jr. dealt with properties of important classes of functions of several variables and the use of these properties in connection with applications to partial differentiation and the calculus of variations. One of the classes of functions considered may be regarded as the generalization in one sense of the notion of absolute continuity for functions of one variable. This generalization differs from an alternative one due to Tonelli but has certain relationships with it. In the same number of the *Duke Mathematical Journal* there was published a paper by R. P. Boas, Jr., and D. V. Widder in which was established a new inversion formula for the well-known Laplace integral. Some other aspects of the theory of the Laplace integral were developed in a paper by J. Shohat, entitled "Laguerre polynomials and the Laplace transform," which appeared in a later number of the *Duke Mathematical Journal.*

Integral Equations.—A considerable development of the theory of integral equations in the case where the equation is singular and the parameter real was presented by W. J. Trjitzinsky in a paper that appeared in the *Annals of Mathematics.* Integral equations of the type considered arise in the applications in connection with problems of dynamics and quantum mechanics.

ALGEBRA

The structure of algebras or systems of hypercomplex numbers that are semi-simple has been known for many years by Wedderburn's fundamental theorems. In recent years there has been considerable activity in the study of non-semi-simple algebras and important contributions have been made by Brauer, Nesbitt, and Nakayama. Aside from their intrinsic interest, results in this direction are applicable to the problem of representation of groups by matrices with elements in a finite field. Nakayama published an interesting paper in 1939 on a class of these algebras which have the property that their regular representations are similar. The arithmetic theory of these algebras was discussed in a paper by MacDuffee. Rinehart considered algebras over the field of real numbers and obtained an interpretation of the inertial index of the discriminant matrix. Somewhat related to these researches is the work of Hopkins and Levitzki on algebraic systems called rings on which a finiteness condition is imposed on chains of subrings in place of the finiteness of basis assumed in an algebra. An excellent summary of the theory of algebras is afforded in a new book, *The Structure of Algebras,* by Albert. Here, as in all of the above work, the associative law of multiplication is assumed. Certain systems called Lie algebras (because of their connection with Lie groups) have been considered by Jacobson and Zassenhaus. The latter pointed out a connection between these systems and finite groups of prime power order.

A number of contributions were made to the relatively new field of lattice theory by G. Birkhoff, Dilworth, Ore, and Ward. One of the aims of these investigations is to obtain a logically simple form of the theory of factorization. Related to this was the work of Clifford, Lorenzen, and Kawada and Kondo on the arithmetic theory of semi-groups. In another direction a paper by MacLane and Schilling obtained a characterization of the fields in which the E. Noether theory of factorization holds. A new book on lattice theory was published by G. Birkhoff.

New results in the theory of fields, particularly modular fields and p-adic number fields, were obtained by Albert and by MacLane. The fundamental theorem of Galois theory establishing a correspondence between sub-fields of certain fields and their groups of automorphisms was extended to non-commutative fields and to linear systems by Baer and by Jacobson. Baer has also obtained a number of new results on the lattice theory of groups.

GEOMETRY

The Question of the Square.—For many years the following question attracted the attention of mathematicians: "Can a square be cut into a finite number of smaller squares no two of which are of the same size?" It was long suspected that the answer was "No," but in a paper about to be published in the *Duke Mathematical Journal* four young mathematicians, R. L. Brooks, C. A. B. Smith, A. H. Stone, and W. T. Tutte, have shown that the affirmative answer is correct. Their method of proof depends on an ingeniously developed analogue between the properties of dissected squares (or rectangles) and those of certain electrical networks. By making use of well-known properties of networks they are able to obtain many interesting results, among which is the one mentioned above.

Topology.—In investigating the properties of general spaces useful information can often be obtained by considering certain continuous single-valued transformations, or "mappings," of the given space into some other space, usually of a simpler character. Mappings can be classified into types according as they do or do not preserve certain properties of the spaces on which they act. Investigations of these various types have been carried out by G. T. Whyburn, A. D. Wallace, W. T. Puckett, J. L. Kelley, and others. Other aspects of mappings have been studied by S. Eilenberg and N. Dunford.

In a note in the *Proceedings* of the National Academy of Sciences, H. Whitney has announced several results concerning *sphere-bundles.* A sphere-bundle is a space S which can be mapped on another space S′ in such a way that the points of S which map into any given point of S′ constitute a sphere of dimension k. (The circumference of a circle is regarded as a sphere of dimension one, the surface of an ordinary sphere as a sphere of dimension two, etc.) The properties of sphere-bundles seem to have connections with several important problems in topology.

Algebraic Geometry.—In a paper in the *Annals of Mathematics* O. Zariski has given a solution of the important problem of uniformizing an algebraic variety. An algebraic variety is a space defined by means of algebraic equations, and it is said to be uniformized if there are a finite number of sets of equations, each set expressing the coordinates of points of the variety in terms of auxiliary variables, such that every point of the variety is expressed by at least one of these sets. The uniformizing of a variety is an important preliminary to the study of many of its properties, and had previously been carried out only for varieties of one and two dimensions. Although the problem originated from geometric considerations, Zariski's proof is purely algebraic in nature and applies to varieties of great generality.

In the field of differential geometry a significant advance was announced simultaneously and independently by C. B. Allendoerfer in the *American Journal of Mathematics* and W. Fenchel in the *Journal of the London Mathematical Society.* Differential geometry is largely concerned with *local* properties of spaces, that is, properties which can be defined and investigated by considering only a small portion of the space. However, there has recently developed considerable interest in the problem of relating these local considerations to the properties of the space as a whole. In the papers mentioned above there is defined a new notion of curvature, a strictly local property, which can be integrated over the whole space to give a result which is closely connected with the topological structure of the space. Such a curvature had been defined for surfaces long ago, but had never before been extended to spaces of higher dimension.

STATISTICS

During the last few years a considerable number of advances have been made in the development of criteria for testing various classes of multivariate statistical hypotheses. Little, however, has been known about the bias of these tests until recently when J. F. Daly carried out a fairly complete investigation of several classes of these criteria and found them to be unbiased for making the tests for which they were designed. Daly's paper and most of the papers dealing with American advances in the field of statistics have been published in the *Annals of Mathematical Statistics*. G. W. Brown has shown that a class of statistical hypotheses dealing with distribution functions involving scale and location parameters can be reduced to statistical hypotheses dealing with completely specified distribution functions. A. Wald has continued important work on the theory of testing statistical hypotheses, particularly for large samples. Results have been obtained by A. Wald and J. Wolfowitz and also by W. J. Dixon on the problem of testing the hypothesis that two samples are from the same population. George B. Dantzig has established the non-existence of tests of the "Student" statistical hypotheses which have power functions independent of the population variance.

The problem of the probability theory of lengths of runs of elements or events, which has occupied the attention of various German and English authors for nearly a half century with rather limited success, has been extensively investigated in a paper, now in the press, by certain new and well-known combinatorial tools by A. M. Mood. He has solved the problem for an arbitrary number of each of several types of elements, and has extended his results to situations in which the numbers of the various types of elements are subject to multinomial probability laws. He has obtained many moment formulae and asymptotic results for large numbers of elements.

R. R. Singleton has developed an iterative method for obtaining linear regression coefficients by minimizing the sum of absolute deviations between the dependent variable and the regression function of the independent variables. H. Hotelling has made contributions to the problem of the selection of dependent variates so as to obtain the best degree of prediction with linear regression functions. W. G. Madow made further contributions to the probability theory of quadratic and bilinear forms. Further contributions on the problem of obtaining shortest average confidence intervals have been made by A. Wald and S. S. Wilks.

ASTRONOMY

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MEETINGS AND AWARDS

The American Astronomical Society and Section D of the American Association for the Advancement of Science held their winter meetings together on Dec. 27-29, 1939, at Perkins Observatory of the Ohio Wesleyan and Ohio State Universities. Everett I. Yowell, director of the Observatory of the University of Cincinnati, was elected vice-president of Section D. The Astronomical Society of the Pacific met with the American Association for the Advancement of Science on June 19-20, 1940 at the University of Washington. The autumn meeting of the American Astronomical Society Sept. 11-14, 1940 was held at Wellesley College. Joel Stebbins, director of the Observatory of the University of Wisconsin, was elected president.

The Gold Medal of the Astronomical Society of London was awarded to Edwin P. Hubble of Mount Wilson Observatory. The Bruce Medal of the Astronomical Society of the Pacific was awarded to Frederick H. Seares, also of Mount Wilson Observatory.

INSTRUMENTAL ADVANCES

Telescopes.—Four new instruments for the study of the sun were under construction in 1940. In May the new McGregor building was dedicated at the McMath-Hulbert Observatory of the University of Michigan. This will house a 70-foot vertical or tower telescope, of the type used for more than 30 years at Mount Wilson Observatory for solar spectroscopic and spectroheliographic work. The McMath-Hulbert Observatory already has a 50-foot tower telescope, with which an extensive program of motion pictures of the sun's chromospheric phenomena is being carried on. The new telescope will supplement this work with a parallel program of physical measurements of the same phenomena, with spectroscope, photometer, bolometer, and instruments to detect electrical and magnetic effects. For this purpose, extensive laboratory facilities are provided, including rooms into which the beam from the telescope may be reflected and fed into fixed instruments too large to be placed at the direct focus. At the same observatory in October the Francis McMath Memorial Telescope, a 24-inch reflector, was dedicated. This will replace the observatory's original instrument, a 10½-inch reflector, in the taking of astronomical motion pictures.

Coronagraphs.—During the summer Harvard College Observatory established a branch station for solar research in Fremont Pass in Colorado at an altitude of 11,300 feet, the highest astronomical observatory in the world. The main instrument is a coronagraph similar to that with which Bernard Lyot of Meudon Astrophysical Observatory, France made his remarkable photographs and spectrograms of the corona, the first obtained outside eclipse. Lyot's success was due to his care in eliminating every possible source of diffused light in his telescope, and to his observing from a station (the Pic du Midi) above which the atmosphere is thin and clear. The new Harvard station is nearly 2,000 feet higher than Lyot's, and the new coronagraph, in addition to other precautions against light diffusion, has optical surfaces treated by the "invisible glass" technique devised by Cartwright at Massachusetts Institute of Technology.

Another coronagraph, incorporating the technique of television, is under construction at McDonald Observatory of the University of Texas. This is the "coronaviser," developed by Skellett of the Bell Telephone Laboratory. In this instrument the image of the solar chromosphere is "scanned" by a photocell, converting a spatial arrangement of light intensities into a temporal succession of electric current intensities. The sky glare which masks the faint coronal image from the sight is converted into a nearly constant current intensity which can be subtracted electrically as the current is amplified for reconversion, by a cathode-ray reproducer, into a visible picture of the corona. Preliminary trials of the coronaviser were made in 1939 at Dr. G. W. Cook's private observatory at Wynnewood, Penn., and encouraging results were obtained, in spite of the low altitude of the observatory and the extra light diffusion produced by the use of a siderostat mirror which fed the horizontal telescope used to form the solar image.

Photoelectric device for counting star images between assigned limits of brightness on photographic plates has been designed and tried out by

McCuskey of Warner and Swasey Observatory and Scott of Harvard College Observatory. Essentially it is similar to the instruments used for photometric measurement of photographs, except for the addition of a number of Thyratron grid discharge tubes, which pass currents only when actuated by suitably controlled grid currents. Each of these tubes is "set" to pass a current when the amplifier current from the photometer exceeds a determined amount, and counters record the actions of the tubes. The operator merely sees that every star on the plate passes successively before the photocell; the tubes and counters record it in its proper magnitude class.

SUN AND SOLAR SYSTEM

The Photometric Atlas of the Solar Spectrum, prepared at the Observatory of Utrecht, Holland, by Minnaert and his collaborators, appeared in the autumn of 1940. This atlas, long awaited by solar spectroscopists, is a revelation of the capability of modern technique in bringing out the wealth of detail which the great present-day spectrographs provide. It is an automatically traced microphotometer record of the intensity along the solar spectrum, from a series of photographs made by Mulders with the 150-foot tower telescope of Mount Wilson Observatory, between the limits in wavelength of 3600 and 8800 Angstrom units. The record forms a graph, where photographic intensity, on a scale of ten centimeters between no photographic effect and completely opaque film, is plotted against wavelength, on a scale of 0.5 Angstrom unit per centimeter. Many lines classed by Rowland as very faint are clearly shown, and extraordinary detail appears in the profiles of complex lines and blends. To the main atlas made from the Mount Wilson plates is added a supplement from plates of lower dispersion taken at Utrecht, extending the region covered a little farther into the ultra-violet.

Sun Spots.—The number of observed sun-spot groups in the winter, spring, and summer of 1940 was one-third less than in the corresponding period of 1939. This was to be expected in a year about midway from sun-spot maximum (1937) toward minimum.

April Eclipse.—Extensive preparations were made in the United States to observe the two solar eclipses of 1940. That of April 7 was visible as a partial eclipse all over North and Central America (except the Alaskan region), and its central track crossed northern Mexico and all the Gulf States. Since this eclipse was annular, it did not afford opportunity for study of the solar corona and upper chromosphere; but several parties of astronomers photographed the eclipse to determine the relative positions of moon and sun, a Carnegie Institution group recorded effects of the eclipse on the ionization of the earth's upper atmosphere, and an expedition from Yerkes and McDonald Observatories made photometric observations of the sun's radiation, to determine the solar limb-darkening in the infra-red.

October Eclipse.—The total eclipse of Oct. 1 began in Brazil and ended in South Africa. It was low in the sky and of comparatively short duration in both regions, but since Brazil is easily accessible from the United States, and the South African plateau is an astronomical center and enjoys a high percentage of clear weather in the early autumn, numerous European and American expeditions were planned. The spread of war limited observation in South Africa to parties organized by the observatories there, one party from Australia and one from Cruft Physical Laboratory of Harvard University. The Cruft party, who were studying the effects of the eclipse upon radio transmission, were successful; from the others no report has as yet (December 1940) been received. Expeditions were sent to Brazil from Brown University and Mount Holyoke College, and from the National Bureau of Standards and

National Geographic Society. Clouds frustrated the astronomical observations of both groups, but radio studies by the Bureau of Standards were not hindered.

Transit of Mercury on Nov. 11 was generally hidden by clouds from observers in the United States. At Mount Wilson Observatory, however, observations were secured. Parties observed the transit in New Zealand also.

Atmosphere of Venus.—Rupert Wildt of Princeton University Observatory has suggested a solution to the paradox of the atmosphere of Venus, apparently heavily clouded but showing in its spectrum no evidence of oxygen or water vapor, but only of carbon dioxide. Several years ago Wildt pointed out that conditions on the surface of Venus in the past, supposing a deficiency of water from the first, should have favored the formation of a thin atmosphere of water vapor and carbon dioxide, besides chemically inert and spectroscopically invisible gases like nitrogen, and that photosynthesis would have produced formaldehyde in considerable quantities. He attempted in the winter of 1939 to detect spectroscopic traces of monomolecular gaseous formaldehyde, using the 82-inch McDonald telescope, but found none. Wildt now suggests that the formaldehyde would probably form polymers which should sublimate and crystallize at the probable temperature of the lower atmosphere of Venus, giving clouds of crystalline polymerized formaldehyde, analogous to terrestrial ice-crystal cirrus, and "formaldehyde-snow" on the planet's surface.

Mars.—The beautiful photographs of Mars secured at the close opposition of 1939 at the Lamont-Hussey Observatory at Bloemfontein, South Africa, by E. C. Slipher of the Lowell Observatory, were shown at the meetings of the American Astronomical Society and Astronomical Society of the Pacific, and some of them have been reproduced in the periodical *The Telescope* for September 1940. A large number of "canals" are definitely shown on the original photographs, in the same places in which they have appeared on photographs at earlier oppositions, but considerable changes in relative visibility of the "canals," and in shape and distinctness of the larger markings, are evident. The effect of haze in the atmosphere of Mars is conspicuous in the pictures taken on some days, as at the last opposition.

Neptune.—Brouwer of Yale University Observatory and Lloyd Wylie of the United States Naval Observatory, in collaboration with the Watson Astronomical Computing Bureau of Columbia University, have completed a very thorough discussion of the orbit of Neptune since it was first observed in 1795. In addition to new elements of the orbit, and a comparison with Newcomb's tables of Neptune, the discussion yielded a value for the mass of Pluto, calculated from its clearly evident perturbations upon Neptune. Pluto's mass came out 82 per cent of that of the earth. This agrees well with the value (94 per cent) found by Nicholson and Mayall in 1931, but is higher than would be expected from the planet's faintness. At the same distance Venus, which has about the same mass as Pluto, would look more than ten times as bright. Pluto must, therefore, be either much smaller than Venus, and hence much denser, or it must have a very much lower reflecting power, even lower than that of the moon. The latter alternative is the more likely, for Venus has the highest density in the solar system, with the exception of that of the earth.

Comets.—Six cometary discoveries were reported in the first 11 months of 1940. Two were returns of expected periodic comets, Schwassmann-Wachmann 1925 II and Whipple 1933 IV. The other four were discovered by Kulin (Budapest), Whipple (Harvard), Cunningham (Harvard), and Okabayashi (Tokyo). Cunningham's comet was expected to reach easy naked-eye visibility at the end of the year, as it passed nearly midway between the earth and sun. Kulin's comet, which he first considered to be an asteroid, was not confirmed by any other observer. Two expected periodic comets, Finlay 1886 VII and Neujmin 1929 III, were not found.

Amor.—The remarkable asteroid Amor, discovered by Dalporte of Uccle, Belgium, in 1932, when it approached the earth within 11,000,000 miles, was rediscovered on March 14, 1940, by Delporte himself. This will make it possible to compute much improved elements of the orbit of Amor, and should make it easier to follow it in the future.

Eros.—Two extensive discussions have dealt with the rotation of the asteroid Eros, deduced from its light-variations. Stobbe of the Berlin-Babelsberg Observatory attempts to harmonize the results obtained by many investigators who have computed the position of the pole of Eros from the changes in the time and amplitude of variation at different positions of the asteroid relative to the sun and earth, at oppositions from 1901 to 1938. He finds it necessary to assume a wandering of the pole to and fro over an area of perhaps 20 degrees radius about a mean position lying in right ascension 350°, declination 38° north, an oscillation taking place in two or three months. Stobbe computes the true rotation period of Eros as 0.21959 day, and gives an expression for calculating the time of light-minimum. Huruhata of Harvard College Observatory also discusses the same series of observations. He adopts Watson's position of the pole (right ascension 316°, declination 51° north) and finds a slightly shorter period than does Stobbe, and a different expression for the time of minimum. He considers that neglect of a small correction by Stobbe casts doubt on his conclusion that the pole wanders.

Meteors.—The photographic observation of meteors at Harvard College Observatory has continued to yield important material for study. Whipple has discussed observations of 14 Taurid meteors, of which five were simultaneously observed with two cameras equipped with rotating shutters, so that for these the positions and velocities could be directly computed. Whipple finds that these meteors move in orbits with periods close to 3½ years, and he points out the similarity of the orbits to that of Encke's comet. The differences between the cometary and meteoric orbits seem to be traceable to the perturbations of Jupiter, so that a common origin of comet and meteors is suggested.

J. D. Williams of Princeton University has applied the statistical "method of maximum likelihood" to a carefully controlled sampling of visual observations of meteors (made by Knabe with binoculars), in order to determine the density of meteors in space. He finds about 60,000 meteors brighter than magnitude 6.0 in a volume equal to that of the earth; this is about three-fifths of the number found by Watson (1936) from the material furnished by the Harvard-Cornell Meteor Expedition to Arizona.

STARS, GENERAL

"The Masses of the Stars," by Russell and Miss Moore of Princeton University Observatory, was published in the spring of 1940. This monograph summarizes all current knowledge of stellar masses, gained from the study of binary stars of all kinds, visual, spectroscopic, and eclipsing. In particular, it includes a very thorough discussion of the application of statistical methods to the problem of determining reliable average values of the apparent orbital motions and the parallaxes (and hence the real orbital motions and masses) of classes of stars for which the individual orbits and parallaxes cannot be found —the problem whose solution is fundamental to the determination of "dynamical parallaxes" of binaries. The discussion leads to a redetermination of the mass-luminosity relation, established by Eddington mainly from the individual orbital motions and parallaxes of 28 pairs of stars, and now strongly confirmed by data from nearly 2,700 pairs. A revised procedure for calculating dynamical parallaxes, and a table of the dynamical parallaxes of 2,529 systems, are included in the book. It is likely to remain the standard treatise in its field for many years.

The period-luminosity relation for Cepheid variables, which is the basis for the estimation of the distance of the farther parts of our own galaxy and of other galaxies, was critically rediscussed in 1939 and 1940. R. E. Wilson of Mount Wilson Observatory computed mean radial velocities, mean parallactic and peculiar motions, and mean magnitudes for two groups of Cepheids, of mean period 0.48 and 7.8 days respectively, 224 stars in all. He found from these data mean absolute magnitudes which agreed within the probable errors with the values given by Shapley's period-luminosity curve, as revised by him in 1930. Shapley and Miss McKibben of Harvard College Observatory have redetermined the form of the curve on the basis of 105 new Cepheids in the Magellanic Clouds, in addition to those previously known, many of whose periods and magnitudes have been revised. The results agree closely with the 1930 curve, a correction of about —0.1 magnitude over the middle part of the curve being indicated.

STARS, SPECIFIC

Zeta Aurigae.—The long-period eclipsing variable Zeta Aurigae went through primary eclipse between Dec. 19, 1939, and Jan. 28, 1940. The small high-temperature component took one and one-third days to pass behind the limb of its gigantic companion, and the diminution of its light as it did so in December was well observed at six American and European observatories. Clouds interfered with observations of the reappearance in January at most of these places, but at Mount Wilson and Lick Observatories some measures of magnitude were made. As a result, the shape of the light-curve was better determined than ever before, and Christie of Mount Wilson Observatory has shown that this shape is well represented theoretically by the occultation of a uniformly illuminated disc by a straight edge—a surprising result, considering that spectroscopic observations indicate that the eclipsed star shines through the upper atmosphere of the other for a month each side of eclipse. Kron of Lick Observatory reports that photoelectric measures just outside eclipse did not show any perceptible dimming of the smaller star's total light by this atmosphere. Wirtanen of McCormick Observatory has made spectrophotometric measures of the light of the system outside eclipse and during totality, in light of eight different wave-lengths. In green and yellow light there was almost no diminution during eclipse; in blue and violet light the drop was about a magnitude and in ultra-violet nearly two magnitudes, as would be expected from the difference in the colors of the hot and cool components. A comparison by Beer of the University of London of spectroscopic observations at the eclipse of 1937 with those made in 1934 has brought out considerable changes in the apparent structure of the chromosphere of the large cool component. The later observations are in better accord with Milne's theory of the chromosphere than the earlier.

Beta Lyrae.—The peculiar eclipsing binary Beta Lyrae has been given a new explanation by Kuiper of Yerkes Observatory. Adopting the hypothesis that the two stars are in contact, forming a single dumb-bell shaped figure, he points out that if the two stellar nuclei in such a figure are unequal in mass (as in this case) the conditions for gravitational stability and for thermodynamic equilibrium are not simultaneously to be satisfied; if the former holds, there must be a pressure difference between the atmospheres of the stars, and a circulation of material between them, through the narrow part of the dumbbell. There should also be an escape of material at the point of the surface of the less massive star which is farthest from the larger, producing a "tail" which would lag in a curve behind the rapidly revolving star, forming one or more spiral turns. This tail is ionized by the radiation of the bright component, outside the shadow-cone of the faint component, but not inside it; consequently it strongly absorbs the light of the bright component as it is seen emerging from eclipse, but not as it enters eclipse. To this absorption is ascribed the well-known asymmetry of the light-curve, and the tail also provides some of the peculiar features of the spectrum of the system.

The binary HD 193576, one component of which is a Wolf-Rayet star, has been discussed by O. C. Wilson of Mount Wilson Observatory, on the basis of a series of spectrograms, and by Sergei Gaposchkin of Harvard College Observatory, on the basis of photometric measures which show the system to be an eclipsing one. The Mount Wilson Observations give minimum mass of the Wolf-Rayet component and the other (of type about B1) as respectively about 10 and 25 times the solar mass. Since the stars eclipse each other, the orbit is nearly on edge, and the masses are nearly the true ones. From the strengths of interstellar lines, and the nearly equal intensities of the two spectra, the respective bolometric absolute magnitudes are computed as about —6 and —3.5, in decided contradiction to the mass-luminosity relation, the Wolf-Rayet star being much too bright and the B-star too faint. If the B-star is considered normal and the magnitudes appropriately corrected, the Wolf-Rayet star is about four magnitudes too bright for its mass, and has about three times the sun's radius and half the sun's density. These conclusions assume an effective temperature of 80,000° K for the Wolf-Rayet star, in accordance with current ideas regarding such objects. But the Mount Wilson spectrograms further show a "red-shift" of the Wolf-Rayet emission bands of 90 kilometers per second, with reference to the center of gravity of the system. Wilson suggests two alternative explanations: that the violet sides of the broad bands, due to an expanding atmospheric shell, are weakened by absorption of the continuous spectrum of the stellar nucleus, or that the red-shift is gravitational, in which case the Wolf-Rayet star is very small and dense, like a white dwarf. The latter alternative is favored by Wilson, though it requires that the light of the nucleus must be selectively emitted (by some quasi-fluorescent process which concentrates it in the photographically active frequencies), for the assumption of anything like black-body radiation would require a fantastically high temperature.

The Harvard light-curve of this binary shows shallow but well-defined eclipses, of 0.30 and 0.14 magnitudes depth. In such a case, definite stellar dimensions can not be obtained, but the solutions will give limiting values. One quantity, however, is always obtainable: the ratio of the surface-brightnesses of the stars, which is equal to the ratio of the depths of the eclipses. This ratio gives the Wolf-Rayet star only half the surface-brightness of the other, and (assuming black-body radiation) only two-thirds the effective temperature. If the B-star is normal, the temperature of the Wolf-Rayet star is under 14,000° K, at very wide variance with Wilson's assumptions and with current ideas regarding stars of this type. If this is true, the high excitation of the emission bands demands an explanation in terms of selectively radiated nuclear light, but in the opposite sense to that suggested by Wilson. The limiting solutions permit either star to be the larger; the limit in which the B-star is the larger and brighter (which Gaposchkin favors) makes it a normal star; the other star is then about a magnitude too faint for its mass. To complete the puzzle, a few Harvard spectrograms have been obtained, and do not confirm the red-shift.

Gamma Cassiopeiae.—The remarkable B-type variable star Gamma Cassiopeiae, after remaining quiescent during the earlier months of 1940, showed conspicuous spectral changes and a slight flare-up in brightness in the fall. Baldwin of Dearborn Observatory has correlated the complex variations of the spectrum, color, and magnitude of this star, by supposing that it is in rapid rotation and also pulsating. Both photosphere and atmosphere are considered to vary in radius, the latter lagging a little behind the former, and the conservation of angular momentum forces a corresponding variation in the rate of rotation, which alters the widths of the broad absorption lines, while the change in photospheric area is responsible for color and magnitude changes. The hypothesis does not offer a complete explanation of phenomena, but its calculated consequences are in good general agreement with observation.

The ultra-violet spectra of a number of stars, showing emission lines supposed to be due to extended atmospheres, have been studied by Swings and Struve of Yerkes Observatory, using spectrograms obtained with the 82-inch McDonald reflector. A group of O-type stars with vestiges of Wolf-Rayet emission showed absorption and emission lines of doubly and trebly ionized nitrogen and trebly ionized silicon, besides hydrogen and helium, while in absorption doubly and trebly ionized oxygen were visible, and in emission quadruply ionized nitrogen. Production of the emission lines of these stars, and some of the absorption lines, was ascribed to a "P-Cygni shell" of rapidly rising gas, with radius of the order of twice the radius of the photosphere. P Cygni itself, and four other similar stars, were studied in detail, with regard to the mechanism of production of various lines, including "forbidden" lines of doubly ionized iron; the expanding shells were also discussed. In a similar manner a group of emission B-type stars was investigated, including Gamma Cassiopeiae in its present stage and Zeta Tauri. Lastly were discussed four variable M-type stars showing lines of very high excitation, probably binaries with extremely hot companions; two of these stars showed lines of six-times-ionized iron, and one line each was tentatively identified as due to nine-times-ionized iron, eight-times-ionized chromium, and eight-times-ionized titanium. Explanations of some of the complex changes in these stars were suggested, on the basis of the interaction of the hot star, to cool star, and a nebulous envelope surrounding the hot star.

Beals of the Dominion Astrophysical Observatory of Canada has suggested that emission B-type stars, P-Cygni stars, and Alpha Cygni stars may be related, on the basis of spectral similarities, as stages in the development of an atmospheric envelope about a star. The envelope is at first small and thin, producing the emission B characteristics, then thicker giving intermediate types of spectrum, and finally so large and thick that all spectral lines are due to it. Whether this stage produces a P-Cygni star, with spectrum dominated by emission lines, or one like Alpha Cygni, where absorption prevails, is dependent upon the quality of the radiation received by the envelope of the central star.

NOVAE

Five super-novae were detected in exterior galaxies during 1940, but no normal novae in our own galaxy. The immense number of observations that have been made on galactic novae in the last few years, however, provided material for several discussions. Tai at the Solar Physics Observatory of Cambridge, England contributed a discussion of the relative sizes of the atmospheric shells around Nova Herculis 1934, as deduced from displaced absorption and emission lines in the star's spectrum during the first three months after it appeared. He concluded that the shells showing most rapid ejection of matter were generally inside those of lower velocity, but that the inner shells did not overtake and pass through the outer, but represented regions of continuous ejection and not discrete expanding masses. The emission lines associated with a shell appeared to represent regions nearer the star than the regions from which the absorption lines of the same shell arose. Furthermore, it appeared that shells were not complete but fragmentary, appearing only over certain areas of the stellar photosphere, so that various shells were able to exist side by side. The spectrum of the same star five years after the outburst (in the spring of 1940) was photographed at McDonald Observatory, as was the spectrum of RT Serpentis. 21 years after its last explosion in 1909. Both stars are characterized by "nebular" spectra, in which the forbidden lines are most prominent. Iron in stages of ionization up to six is apparently present, and neon up to four; doubly ionized neon is prominent, exceeding doubly ionized oxygen in RT Serpentis. The two visual components of Nova Herculis give similar but not identical spectra.

The spectra of two rather inconspicuous novae, Nova Lyrae 1919 and EL Aquilae 1927, were carefully described in detail by Wyse of Lick Observatory, in two papers which round out Volume 14 of the Lick Publications, a series of nova studies begun by Wright in 1920. Vorontsov-Velyaminov of Moscow discussed the spectrum of the "slow" nova DO Aquilae 1925, and compared it with Nova Pictoris 1925, another slow nova. A spectrophotometric study of Nova Lacertae 1936 by Popper of McDonald Observatory was made from plates taken at Lick Observatory; the various observed features were interpreted on the model of a hot nucleus whose radiation excites a tenuous envelope to emission, the envelope expanding, the nucleus probably contracting. The relation between rate of decline of light and velocities of principal and enhanced absorption spectra, as shown by 21 novae, was investigated by McLaughlin of the Observatory of the University of Michigan. He concluded that: "(1) the spectral stage is a function of the difference of magnitude from maximum; (2) the time of decline or of spectral change is inversely proportional to the square of the velocity of the principal spectrum; (3) in the average case, the velocity of the diffuse enhanced spectrum is twice that of the principal spectrum."

EXTERIOR GALAXIES

The distribution of color in seven conspicuous spiral nebulae has been studied by Seyfert of McDonald Observatory, measuring photographs taken on blue-, yellow-, and red-sensitive plates with the 24-inch reflector of Yerkes Observatory and the 82-inch McDonald reflector. He finds, in confirmation of earlier work by Seares and by Carpenter, that the spiral arms and the knots in them are decidedly blue. They have red-indices of approximately 0.2 magnitude, indicating that the arms and knots are about the color of B-type stars. The nuclei of the nebulae, and the general luminous background, extending out from the nucleus with a smoothly diminishing intensity, and having the arms apparently superimposed upon it, are alike in color, having about that of a G-type star. Emission nebulae in the spirals betrayed themselves by discrepancies between their red-indices and their blue-yellow color-indices. Measures of distribution of color in a spiral with a conspicuous dark lane gave no indication of reddening within the dark lane.

Mayall and Aller of Lick Observatory have observed the radial velocities of bright-line nebulae in the spiral M33, and deduced the rotational velocity of the spiral. This is found to be 125 kilometers per second between 1000 and 1250 parsecs from the center; farther out and farther in, the velocity decreases, the inner regions apparently rotating nearly as a single solid body, while the outer parts move in a planetary fashion about the massive nucleus.

A statistical investigation of the

tendency of exterior galaxies to occur in clusters has been made by Holmberg at Mount Wilson Observatory, using the General Catalog of Dreyer and the Survey of Brighter External Galaxies of Shaply and Ames. Holmberg chooses 433 of the brighter objects, and compares the number of other galaxies, within two degrees of each one of these, with the number to be expected if galaxies are distributed at random. He finds a pronounced clustering effect, and after statistically separating physical from optical companions, derives the distribution of real separations of neighboring objects and the space densities of galaxies in the groups. He then considers the possible formation of groups by capture in a universe where galaxies were originally distributed at random, and concludes that this is much less likely in an expanding universe than in a stationary one. Finally the distribution of elliptical and close and extended spiral objects, in clusters of different orders, are discussed, with the suggestion that encounters between galaxies may act to transform open spirals into compact elliptical nebulae—a reversal of the usually assumed succession.

PERIODICAL PUBLICATIONS

American Journal of Mathematics
Johns Hopkins Press, Baltimore, Md.
American Mathematical Monthly
33 Peters Hall, Oberlin, Ohio.
Annals of Mathematics
Princeton University Press, Princeton, N.J.
Astronomical Journal
Albany, N.Y.
Astrophysical Journal
5750 Ellis Ave., Chicago.
Bulletin of the American Mathematical Society
531 West 116th Street, New York City.
Duke Mathematical Journal
Duke University Press, Durham, N.C.
Journal of Mathematics and Physics
Massachusetts Institute of Technology, Cambridge, Mass.
Popular Astronomy
Carleton College, Northfield, Minn.
School Science and Mathematics
450 Ahnaip Street, Menasha, Wis.
Transactions of the American Mathematical Society
531 West 116th Street, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Astronomical Society, Ann Arbor, Michigan.
American Mathematical Society, 531 W. 116th St., New York City.
Mathematical Assn. of America, 33 Peters Hall, Oberlin, Ohio.
National Academy of Science, 2101 Constitution Ave., N.W., Washington, D.C.
Science Service, 2101 Constitution Ave., N.W., Washington, D.C.

DIVISION XIX

ENGINEERING AND CONSTRUCTION

STRUCTURAL ENGINEERING

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THE NATIONAL DEFENSE FACTOR

The emphasis in structural engineering in 1940 was largely related to preparations for national defense. The immediate need for large quantities of mechanized equipment after the collapse of France in May, required an emergency basis for construction in order that housing for manufacturing facilities and personnel could be provided quickly. The passage of the Selective Service Act in September also necessitated an increase in camp facilities. The estimated total expenditure earmarked for construction purposes in five defense bills is about $2,500,000,000. The major classifications of projects are: airbases, army training camps, arsenals and depots, shipbuilding plants, ordnance plants, and explosives plants. Negotiated contracts for the acquisition of bases on British territory in the Caribbean, Newfoundland, and Bermuda will probably increase construction activity next year. Much of the construction is of a light and relatively temporary type, but a great deal is permanent.

The effect of defense preparations was also reflected in increased construction by private industry for plant expansions to handle defense contracts. Considerable concern was being felt during December over the failure to keep the defense construction program on schedule.

The *Engineering News Record* reported on Dec. 24 that the aggregate of awards for 1940 construction was $3,987,243,000, the highest ever reported. The 1940 figure is one per cent above 1929 and 33 per cent above 1939. Defense awards lifted the level of Federal contracts to more than four times that of 1939. Private awards were 31 per cent larger.

DAMS

Grand Coulee.—Concrete work on Grand Coulee Dam was practically completed by the end of the year. Grouting was begun to close the 5 ft. wide twist adjustment slots. Work on the first power house is proceeding rapidly and current will be available in October 1941. By executive order dated Aug. 26, the Bonneville Administrator was authorized to market Grand Coulee Power. It is expected that water will flow over the spillway in May or June of 1941.

Work progressed during the year on the various features of construction required for migratory fish control on the Columbia River. The Leavenworth hatchery, rearing ponds, and water supply were completed, and the artificial spawning and rearing of young fish was carried on successfully. During 1941 the construction of two auxiliary stations at Entiat and Winthrop, Wash. will be completed. A game fish hatchery and rearing ponds for the purpose of stocking the reservoir and tributaries upstream from Grand Coulee Dam will also be constructed during the coming year. (See The American Year Book, 1934-1939.)

Shasta Dam.—The greatest flood

loss experienced on the Sacramento River during the latter part of February 1940 damaged the contractor's plant and caused some delay in scheduled operations. However, concreting was begun on July 8, and by October 200,000 cubic yards of the total 6,000,000 cubic yards of concrete had been poured. The concrete is being placed by means of multiple cableways radiating from a central tower, 460 feet high, to nine tail towers. The designed placement rate is 6,000 cubic yards per day. The aggregate is carried 9½ miles from Redding on a rubber belt conveyor. When completed, Shasta Dam will be the second largest and second highest in the world. At the end of the year it was 45 per cent complete, based on cost. (See THE AMERICAN YEAR BOOK, 1936, p. 634; 1938, p. 647; 1939, p. 677.)

Friant Dam.—This structure is a companion of Shasta Dam as part of the Central Valley Project in California. Its total cost is estimated at $16,000,000. Excavation was begun early in the year and proceeded rapidly. The first concrete was placed on July 29. Revisions have changed certain of the figures reported in THE AMERICAN YEAR BOOK, 1939, page 677. The height will be 325 feet and volume of total concrete, 2,200,000 cubic yards. The concrete is being placed by four cranes traveling on a 2200 ft. structural steel trestle. Two hammerhead cranes with 300 ft. arms and a whirley crane with a boom 125 feet long have been placed on the trestle. It will be exceeded in volume of concrete by only Boulder, Grand Coulee, and Shasta. The 520,000 acre feet reservoir will furnish storage of 70,000 acre feet for flood control and 350,000 acre feet for irrigation. It was 45 per cent complete at the end of 1940. The scheduled date for completion is February 1943.

Marshall Ford Dam.—Work was started on the third and final stage of the Marshall Ford Dam near Austin, Tex. (See THE AMERICAN YEAR BOOK, 1939, p. 677.) It is scheduled for completion by the end of 1940. Its purposes are flood control of the Colorado River, of Texas, the development of 136,000,000 kilowatt hours of firm hydro-electric energy, and furnishing storage for irrigation water. The estimated cost is $25,000,000.

Green Mountain Dam.—Work on the placing of the embankment for the 270 ft. high earth-fill Green Mountain Dam was started during the summer of 1940. Power house excavation was well under way. Designs were slightly revised, so that the embankments will contain 3,122,000 cubic yards of impervious rolled fill and 1,739,000 cubic yards of rock fill and riprap. (See THE AMERICAN YEAR BOOK, 1937, p. 665; 1938, p. 648; and 1939, p. 677.)

Denison Dam.—The United States Supreme Court on Feb. 12, 1940 denied the petition of the State of Oklahoma involving the stopping of the construction of Denison Dam (See THE AMERICAN YEAR BOOK, 1939, p. 676.) The excavation at the outlet works was finished in May and excavation for the spillway and dam embankment was begun. The reservoir formed by the dam will have a volume of 5,825,000 acre feet of which 1,200,000 acre feet is allocated to silt storage, 2,060,000 acre feet for hydroelectric power, and 2,745,000 acre feet for flood control. Construction quantities include 15,000,000 cubic yards of excavation, 558,000 cubic yards of concrete and 17,500,000 cubic yards of embankment. The project is scheduled for completion in April, 1944.

Ft. Supply Dam.—The last of three contracts was let for the completion of this structure which was started in 1938. New contracts involve spillway and outlet works, construction and completion of the embankment. The structure is to be finished late in 1942. (See THE AMERICAN YEAR BOOK, 1939, p. 678.)

Arkabutla Dam.—Contracts were let on July 6 for the construction of the 65 ft. rolled fill flood control dam on the Coldwater River seven miles northeast of Prichard, Miss. This structure, with Sardis Dam, will serve as a part of the Yazoo River flood control development. The contract price is $5,158,158.

John Martin Dam.—This flood control and water conservation structure, formerly called the Caddoa Dam, is located on the Arkansas River in southeastern Colorado. It is designed to reduce floods of record to a maximum of 10,000 cubic feet per second below the dam. It will include a combination earth fill dam and a concrete overflow spillway. Major main line railway and highway relocations will be involved.

Stevens (Mud Mountain) Dam.—The name of this structure was changed during the year to the Stevens Dam. The estimated cost of the originally planned structure was increased by more than $1,000,000 because of a change in design from an earthfill to a rock faced dam. The change was made necessary when it was found that the available earth was not suitable for the surface of the dam on account of excessive clay content. The original contract price was approximately $5,400,000. (See THE AMERICAN YEAR BOOK, 1939, p. 678.)

Ft. Peck Dam.—The 122,700,000 cubic yard embankment forming this project for power navigation and flood control on the Missouri River near Glasgow, Mont. was topped out on Oct. 11. Work on the placement of the gravel blanket and stone riprap is under way. A power house is being constructed at the outlet of diversion Tunnel No. 1 and control machinery is being installed in Tunnel 4. The cost of the project is estimated at $122,900,000. (See THE AMERICAN YEAR BOOK, 1938, p. 646 and 1939, p. 678.)

California Flood Control Dams.—Prado Dam, the main flood control unit on the Santa Ana River is scheduled for completion in May 1941. The 100 feet high earth embankment with concrete spillways and outlet works will reduce flood peaks from 192,000 to 9,200 feet per second. Essential units for the control of floods in Orange County are the Brea and Fullerton flood control basins formed by earth fill embankments 84 feet and 45 feet high respectively. These retention basins are required because of the infeasibility of constructing channels of sufficient capacity to carry unregulated peak flood flows of Brea and East Fullerton Creeks to the San Gabriel River. Construction work was started on both units during the year. In Los Angeles County the Hansen Dam (see THE AMERICAN YEAR BOOK, 1939, p. 679) was completed and the Sepulveda Dam on the Los Angeles River was nearing completion.

MISCELLANEOUS FLOOD CONTROL DAMS

Work was active on the following flood control dams being built by the U. S. Engineers (see table, p. 720):

Pensacola Dam.—This structure, the largest multiple arch type dam in the world was accepted as complete in October 1940 by the Grand River Dam Authority. It is located on the Grand River in northeastern Oklahoma. It is intended to control floods on the Grand River and to develop hydro-electric power. The maximum height is 152 feet. The arch section, 4,284 feet long, is composed of 51 arches each having a span of 60 feet and each supported on hollow buttresses 84 feet on centers. A non-over flow gravity section 471 feet long and a spillway section 870 feet long give a total length of more than a mile. The spillway is a concrete gravity section and is controlled by 21 tainter gates each 36 feet long and 25 feet high. The spillway capacity is 525,000 cubic feet per second. The reservoir formed will have a capacity of 1,680,000 acre feet at elevation 745 feet above mean sea level. Early in March the Governor of Oklahoma ordered the National Guard to stop work on the dam, claiming that arrangements should be made to pay the state $800,000 because certain roads would be submerged. In April the Federal court at Tulsa granted the Federal Government a permanent injunction preventing the Governor from inter-

Name	Type	Approximate Height, Feet	Stream	State
Surry Mountain	Earth	83	Ashuelot River	New Hampshire
Franklin Falls	Earth	140	Pemigewasset River	New Hampshire
Birch Hill	Earth	59	Millers River	Massachusetts
Knightville	Earth	160	Westfield River	Massachusetts
Whitney Point	Earth	90	Ofselic River	New York
Indian Rock	Earth and Rock	82	Codorus Creek	Pennsylvania
Loyalhanna	Concrete and Earth	113	Loyalhanna Creek	Pennsylvania
Youghiogheny	Earth	184	Youghiogheny River	Pennsylvania
Tionesta	Earth	154	Tionesta Creek	Pennsylvania
Mahoning	Concrete Gravity	160	Mahoning Creek	Pennsylvania
Crooked Creek	Earth	143	Crooked Creek	Pennsylvania
Blue Mountain	Earth	115	Petit Jean River	Arkansas
Clearwater	Earth	190	Black River	Arkansas
Nimrod	Concrete Gravity	97	Fourche La Fave	Arkansas
Great Salt Plains	Earth	69	Salt Fork, Arkansas River	Oklahoma
Canton	Earth	68	North Canadian River	Oklahoma
Kanopolis	Earth	125	Smoky Hill River	Kansas
Conchas	Concrete and Earth	235	South Canadian River	New Mexico
Cottage Grove	Earth	95	Coast Fork, Willamette River	Oregon
Fern Ridge	Earth	44	Long Tom River	Oregon
Mill Creek	Earth	145	Mill Creek	Washington

fering with the construction. The building of the structure was financed by P. W. A. The estimated cost is $22,500,000.

Austin Dam.—The rebuilt Austin Dam forms the fourth unit in the flood control improvement on the Colorado River in Texas. The original dam was built in 1893, failed in 1900, reconstructed in 1911-1915, and partially failed in 1915. Much of the old structure was used in the new one. The cost of rehabilitation was $3,200,000.

Santee-Cooper Project.—Good progress was made on the several units of this project. (See The American Year Book, 1939, p. 680.) The dam, power house, and lock at Pinopolis are nearing completion and work on the Santee Dam is progressing rapidly. The latter structure will include a concrete spillway and about eight miles of roll-fill embankment. The entire project will contain about 34 miles of dams and dikes. The 75-foot left lock, the Pinopolis reservoir, and appurtenant excavated channels will provide navigation facilities from Charleston to Columbia, S. C.

TENNESSEE VALLEY AUTHORITY

The Dam Program.—Work on the development of water utilization and conservation was vigorously prosecuted during the year. The program is now aimed at a 650-mile navigation channel 9 feet deep, the creation of over 10,000,000 acre feet of controlled flood storage, and installation of nearly 1,700,000 kilowatts of electric energy capacity in hydro and steam plants. The construction of dams began in 1933 and will be essentially complete in 1945.

Kentucky Dam.—This structure, formerly known as Gilbertsville dam, will be 8,650 feet long and have a maximum of 160 feet. A concrete spillway, power house, and navigation lock, with 73 feet lift, are flanked by earth embankments. In the power house four 32,000 kw generators will be installed initially and provision made for the installation of a fifth unit. Approximately 1,217,000 cubic yards of concrete and 3,198,000 cubic yards of earth fill will be required. The reservoir will cover 256,000 acres and impound 6,100,000 acre feet of water. During 1940, construction operations consisted of completion of construction plant, excavation and dredging of over 3,000,000 cubic yards of material, preparation of foundations, building of sheet pile cofferdam for the construction of the power house and a portion of the spillway, and pouring 270,000 cubic yards of concrete in the lock structure. The estimated cost of the dam is $32,000,000 and of the entire project nearly $100,000,000. (See THE AMERICAN YEAR BOOK, 1939, p. 680.)

Guntersville Dam.—This structure was completed in 1940. The dam consists of a concrete section, 1,384 feet long, with maximum height of 94 feet, flanked by a 695-foot and 1,900-foot earth embankments to the north and south respectively. The 60-by-360-foot navigation lock has a maximum lift of 45 feet. Three installed power generating units have a total capacity of 72,900 kw. Provision for the installation of a fourth unit has been made.

Chickamauga Dam.—Storage of water behind the dam was begun on Jan. 15, 1940. The structures were essentially complete later in the year. The dam is 5,794 feet long with a maximum height of 129 feet. The 60-by-360-foot lock has a maximum lift of 56 feet. The power house provides space for four 27,000 kw generators of which three have been installed. The generator motors weigh 225 tons each and the outside diameter of the generator housing is 46 feet 6 inches. (See THE AMERICAN YEAR BOOK, 1938, p. 659; 1939, p. 680.)

Watts Bar Dam.—This structure is 2,900 feet long with a maximum height of 97 feet. A 960-foot long spillway is joined on the west by a 150,000 kw., ultimate capacity, power house, and on the east by a 60-by-360-foot navigation lock with maximum lift of 70 feet. A 1,200-foot earth embankment extends eastward from the lock. The reservoir will have a capacity of 1,132,000 feet. Three 30,000 kw. hydroelectric units will be installed initially. During 1940 the excavation on the lock cofferdams was completed, the lock concrete poured, the east embankment placed, and excavation in the power house cofferdam and construction of spillway half completed. Construction of the Watts Bar steam plant with 120,000 kw capacity was started in August. Ninety per cent of the substructure was poured. It is expected to go into service in January 1941 as part of the emergency defense program.

Hiwasse Dam.—This concrete gravity overflow structure, 307.5 feet high and 1,287 feet long, was completed during 1940. It contains 793,000 cubic yards of concrete. The reservoir has a volume of 438,000 acre feet. One 57,000 kw hydroelectric generating unit is installed, and space is provided for a second unit.

Cherokee Dam.—Extremely rapid progress marked the construction activity on this concrete and earth-fill structure on the Holston River, 33 miles from Knoxville, Tenn. Started on Aug. 1, 1940, excavation for the spillway and power house was about 60 per cent complete and the construction railroad and access highways were already finished at the end of the year. The dam will have a maximum height of 175 feet and an overall length of 6,750 feet. The concrete section will be about 1,700 feet long. The volume of concrete will be 725,000 cubic yards and of earth 4,000,000 cubic yards. The reservoir has a capacity of 1,640,000 acre feet. The power house will provide 90,000 kw of power which will be supplemented by a 120,000 kw steam plant. Urgently needed for the aircraft defense program, it is expected that power will be in production by December 1941. The estimated cost of the dam is $36,000,000 and of the project $65,000,000.

BRIDGES

Tacoma Narrows Bridge.—The failure of this structure on Nov. 7, 1940 without loss of life was the outstanding occurrence of the year in the field of bridge engineering. The bridge was the third longest suspension span (2,800 ft.) in the world. It was opened to traffic in July 1940. Investigations to fix the exact causes of failure are under way. Previous to the collapse the bridge had been subject to disturbing oscillations due in part to aerodynamic effects. The depth of the stiffening girder was eight feet and the distance between girders 39 feet, giving span ratios of one to 350 for girder depth and one to 72 for width. The closest approach to these ratios in long span suspension bridges are one to 210 and one to 48. This statement excepts one bridge which in its present form has no stiffening truss or girder. (See THE AMERICAN YEAR BOOK, 1939, p. 682.)

Thomas A. Edison Bridge.—This bridge over the Raritan River near Perth Amboy, N. J. was built to relieve traffic congestion to the New Jersey shore resorts. The roadway is 52 ft. wide and carries five lanes of traffic. The structure is 4,386 feet long and has 29 girder spans ranging in length from 84.5 feet to 250 feet. The 250-ft. girders are 20.5 feet deep and weigh 198 tons each. They are believed to be the largest, longest, and heaviest girders ever erected in one piece. Deep piers, sunk as pneumatic caissons to rock and extending 125 ft. in the air, were constructed from a floating plant. It was opened to week-end traffic in September pending completion of the approaches. The estimated cost is $4,670,000.

Housatonic River Bridge.—Unusual structural features were included in this crossing for the Merritt Parkway between Stratford and Milford, Conn. Canopy type towers called "one-leg bents" were used at two of the piers, and an open grid steel deck was used for the entire length of a long bridge. The distance between abutments is 1,824 ft. Deck girders with spans varying from 128 to 224 feet carry the two 26-ft. wide roadways. Continuous girders were used for the seven spans from the west abutment, and cantilever constructions were used to form the main channel spans and the two spans adjacent. The total cost is estimated at $3,450,000.

Jamestown Bridge.—A modern steel bridge has replaced the ferry system which has provided transportation between the Rhode Island mainland and Connecticut Island for 266 years. The structure is 6,982 ft. long and carries a 22-ft. wide roadway and 3-ft. sidewalk. The main span is a 640-ft. cantilever flanked by anchor spans of 255 feet each. The remainder of the bridge consists of rolled beam, plate girder, and deck truss spans. The 69 foundations were built in nine months from one of the largest floating plants ever assembled for bridge work. Bracing frames weighing up to 158 tons were placed in the sheet pile cofferdams by derrick boat. The depth of water ranged from 12 to 70 feet. The cost was slightly over $3,000,000.

Owensboro, Ky. Bridge.—This steel structure over the Ohio River was dedicated July 30. The total length is 4,623 ft. The main river spans are 278, 750, 629, and 343 feet long. The cost was $2,300,000.

Sullivan (Ind.)—Hutsonville (Ill.) Bridge.—This self-anchored suspension type bridge forms the only crossing of the Wabash River for the 60 miles between Terre Haute and Vincennes, Ind. It is the fifth bridge of its type to be erected in the United States and is said to be the longest span (350 ft.) for which single rolled beams have been used as stiffening girders.

Mississippi River Bridges.—Four important bridges over the Mississippi River were being built or completed or under construction during 1940 and contracts were let for one more.

Baton Rouge Bridge.—The State of Louisiana on Aug. 10 opened for traffic its 3,326-ft. steel cantilever highway and railway bridge at Baton Rouge. The central span is 650 feet, the two adjoining spans 858 feet each, and the two shore anchor spans 490 feet each. The width between trusses is 32 feet. The roadways are supported on brackets outside the trusses. The bridge is designed for two railway tracks but only one track is installed. The cost was approximately $9,500,000.

Natchez, Mississippi Bridge was opened to traffic on Sept. 26. It provides the only highway crossing between Vicksburg and Baton Rouge, 150 miles. It is of the cantilever type and the principal spans are: two of 560 feet each, one of 789 feet, and two of 875 feet each. A suspended span of 437 feet is contained in one of the 875-ft. spans. The roadway width is 24 feet. The balanced cantilever method was used for erection in order to minimize the amount of falsework. The cost of the bridge was approximately $3,500,000.

Greenville, Mississippi Bridge was dedicated on Sept. 17, 1940. It is a steel cantilever highway structure having a main span of 840 feet and two 640-ft. anchor spans. The cost is approximately $4,500,000.

Rock Island, Ill. Bridge.—A five-span steel tied arch bridge was completed in July. It is the first bridge of this type to be erected over the Mississippi River. The spans vary from 395 feet to 540 feet in length. It carries two 22-ft. roadways, a 2.5-ft. center island and two 5-ft. sidewalks. The ribs are built up box girders and the hangers are rolled H sections. The cost was $2,500,000.

Pit River Bridge.—Work proceeded on the construction of the world's tallest piers to support the bridge designed to carry railway and highway traffic over an arm of Shasta Reservoir in northern California. The lower deck will carry a double railway track and the upper deck a 40-ft. wide roadway and two sidewalks. The central span of 630 feet will be a cantilever truss. (See THE AMERICAN YEAR BOOK, 1939, p. 682.)

Lake Washington Pontoon Bridge.—This unusual floating bridge was opened to traffic in July 1940. The total length of the floating structure is 6,561 feet. The overall length is 7,721 feet. Two traffic lanes each way are provided. (See THE AMERICAN YEAR BOOK, 1938, p. 651, 1939, p. 681.)

Louie Morris Bridge.—The new highway span over the Savannah River between South Carolina and Georgia was dedicated on Oct. 11. The 24-ft. roadway is supported by steel girders on concrete piers. A four-span continuous unit was used over the channel proper. The overall length is 1,050 ft.

St. Georges, Delaware.—A new high level bridge is being constructed on the Coleman Du Pont Highway over the Chesapeake and Delaware Canal. A tied arch 540 feet long forms the main span support. Two 23-ft. roadways are provided. The cost is $2,500,000.

Niagara Bridge.—Work was begun on May 4, 1940 for the construction of a new bridge at Niagara to replace the one destroyed by ice in January 1938. (See THE AMERICAN YEAR BOOK, 1938, p. 652.) The new structure is about 350 feet north of the site of the former crossing. It is about 1,450 feet long and contains a 950-ft. steel arch span. Two 22-ft roadways, separated by a 4-ft. mall, and a 10-ft. sidewalk on the upstream side, comprise the trafficways. The cost is estimated at about $1,600,000.

Ludlow Ferry, Maryland, Bridge.—A two-mile bridge over the Potomac River was opened on Dec. 14. The main span is an 800-ft. cantilever flanked by two 367-ft. anchor spans. The remainder of the spans are Wichert girders and trusses. The roadway is 24 feet wide with 1½-ft. walks on each side.

Havre de Grace, Maryland Bridge.—A new 7,600-ft. long bridge over the Susquehanna was dedicated Aug. 24, 1940. Its main features are two 456-ft. arch spans and 47 truss and girder spans. Wichert rhomboid panels connected by pins were used over each pier instead of the usual triangular panels. The arches and side spans were erected by the balanced cantilever method. The cost was approximately $4,500,000.

BUILDINGS

Aluminum Company of America.—General activity in the field of building construction during 1940 was characterized by the preponderance of contracts let for and work done on the expansion of facilities for the production of defense mechanisms. The Aluminum Company of America appropriated more than $150,000,000 for expansion for defense purposes. This is for the increase of hydro-electric power facilities at Greenville and Nantahala, N.C., smelting plants and fabrication plants at Alcoa, Tenn., Lafayette, Ind., Los Angeles, Calif., New Kensington, Pa., Detroit, Mich., Cleveland, O., Edgewater, N.J., and Massena, N.Y. It is expected that these will increase production by 45,000 tons yearly.

Curtiss-Wright.—Construction of the largest single industrial unit for the national defense program was started on Oct. 23 for the Curtis Wright Corporation at Lockland, O. Built for the manufacture of airplane engines, the main building is 1,064 feet by 1,380 feet and will cover nearly 35 acres. The foundry will occupy 160,000 square feet and the engineering quarters 66,000 square feet. The estimated cost is $37,000,000. Other large airplane and airplane engine plants are:

Company	Location	Cost
Grumman	Bethpage, N. Y.	$ 2,500,000
Boeing	Wichita, Kansas	1,500,000
Curtis Wright	Tonawanda, N. Y.	8,000,000
Stinson	Nashville, Tenn.	
North American	Dallas, Texas	
Vega	Burbank, Calif.	
Lockheed	Burbank, Calif.	1,500,000
Douglas	Santa Monica, Calif.	11,254,000
Boeing	Seattle, Wash.	9,500,000
Pratt and Whitney	East Hartford	2,000,000
Ford Motor	River Rouge, Mich.	4,000,000
Consolidated	San Diego, Calif.	700,000
Allison Engines	Indianapolis	

POWDER MUNITIONS AND ARMAMENT PLANTS

Owner or Contractor	Location	Cost
Hercules	Parlen, N. J.	$ 1,000,000
War Department	Wilmington, Ill.	14,000,000
War Department	Baytown, Texas	9,500,000
War Department	Weldon Springs, Mo.	15,000,000
War Department	Rodford, Va.	10,000,000
War Department	Union Center, Ind.	11,500,000
Dupont	Charlestown, Ind.	25,000,000
Tennessee Powder	Memphis, Tenn.	15,000,000
Tennessee Valley Authority	Muscle Shoals, Ala.	6,000,000
Chrysler Corporation	Detroit, Mich.	20,000,000
Carnegie Illinois Steel Corp.	South Charleston, W. Va.	45,000,000

Queens Borough Office Building.—Unusually rapid construction progress was made in connection with the new 3,735,000 cubic foot building to house Borough and New York City offices in Queens. The building was started in March and parts of it were ready for occupancy on Oct. 7. The cost is approximately $2,000,000.

Rockcliffe Apartments, Montclair, N.J.—This building marks the first use in the United States of cavity walls for a major structure. The hollow metal tied form of wall provides heat insulation and moisture protection to an extent which permits plastering directly on the brick masonry. The seven-story structure was completed in 63 working days.

Naval Hospital, Bethesda, Md.—A 20-story structure, 250-feet high to provide quiet sunlight and restful outlook for patients, is now under construction. It is scheduled for completion in December 1941. The estimated cost is $4,850,000.

Nurses' Home, Jersey City, N. J.—This 23-story structure is the tallest all welded steel frame building yet constructed. More than 18,000 lineal feet of fillet welds and about 1,900 lineal feet of built welds were required.

Hospitals, Canal Zone.—Contracts were let for hospitals and nurses homes at Fort Clayton and Fort Gulick in the Canal Zone. The contract price is $4,115,000.

Wesley Memorial Hospital, Chicago.—This 21-story structure forms a unit of the Northwestern University Medical School. The steel framework was completed Sept. 26, 1940. The outside facing is of Bedford limestone. The wood pile foundations for the structure were completed in 1932, but lack of financing delayed further work until April 1940.

Virginia Medical College.—A new 18-story steel frame hospital was completed for the Medical College of Virginia at Richmond. All of the floors are to be winter air conditioned, and two floors are provided with summer air conditioning. The cost is $2,100,000.

Lafayette Building, Washington, D.C.—The largest privately owned office building in the District of Columbia was completed. It is of the steel frame type, 12 stories above ground, and has two basements. The air conditioning system is separately adjustable for each room. The cost is $6,000,000 including land.

Aluminum Plant, Vancouver, Wash.—Construction of a large plant for the manufacture of aluminum in the northwest was started during the fall. Hydro-electric power from Bonneville will be utilized. Its capacity will be 15,000 tons per year. Structural steel frames are being used on the dozen or more buildings ranging in size from 40 ft. by 80 ft. to 230 ft. by 635 ft. It is expected to be in operation early in 1941. The Aluminum Co. of America is the owner.

TUNNELS

Queens-Midtown Tunnel.—The twin 31-ft. tubes were opened for traffic on Nov. 15. It is the first vehicular tunnel under the East River. The work was done by the New York City Tunnel Authority at a cost of $58,000,000.

New York-Brooklyn Battery Tunnel.—Construction was started on this project on Oct. 28, 1940. Twin 31-ft. tubes about 10,000 feet long will extend from Battery Park, Manhattan to Hamilton Avenue, Brooklyn. A ventilating shaft will be located on Governor's Island. The estimated cost is $57,000,000.

Bankhead Tunnel, Mobile, Ala.—This structure was built to carry the Gulf Coast Highway traffic. It is a single 2-lane tube 3,400 ft. long. It was completed in the summer of 1940 at a cost of $4,000,000.

Gunpowder Falls-Montibello Tunnel.—A pressure tunnel for the Baltimore water supply was completed at a cost of $5,400,000. It is approximately seven miles long and has a diameter of seven feet.

Delaware Aqueduct.—Three reservoirs inter-connected with tunnels and an 85-mile long pressure tunnel are being constructed to carry additional domestic water supplies from the Delaware River watershed to New York City. The estimated cost of the project is $298,000,000. Record progress in tunnel driving has been made on the construction reaching 100 lineal feet or more per day.

Colorado-Big Thompson Tunnel.—Contracts were let and active construction work was carried on for the excavation of 8,000 feet at the outlet end and 6,600 feet at the inlet end. Bids will be received early in 1941 for an additional 6,000 feet at the outlet end and later for another section at the inlet. The length of the finished tunnel will be about 69,000 feet. The cross-section is a 9½-ft. diameter concrete lined horseshoe. The estimated cost is $7,271,000.

XIX. ENGINEERING AND CONSTRUCTION

MECHANICAL ENGINEERING

By Blake R. Van Leer

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GENERAL

Progress in a great field of professional engineering is usually not made in large, easily discernible steps. Sometimes that is the case but even then such steps are not always visible to those living in the midst of these things. Great historic steps are usually only obvious many years later to historians. For these reasons this article deals with trends; it is indicative rather than authoritative and conclusive.

The one conclusive fact is that there has been change, and it continues. If progress is accepted as any change which produces a better, quicker, easier, cheaper way of doing the mechanical work which is normally associated with mechanical engineering, then it appears that the Progress in Mechanical Engineering in 1940 was considerable. The progress which involves the human element, while even more important, is not so evident; at least this progress can not be measured so readily, and the standards by which to judge whether or not it is progress are not so firm and generally accepted. Attention here will be focused on that progress which in every instance embodies machines, and the application of men, money and materials to machines.

THE EFFECT OF WAR

The European and the Chinese-Japanese wars were in progress during the entire year of 1940, and their influence became so general that they affected mechanical engineering in several ways in this country. First, many of our large industries have shifted to or increased the proportion of their machines devoted to the production of war munitions and materiel. Second, time which has always been an important element in all mechanical engineering processes has become the ascendent factor, in some instances being given more weight than cost. This has led to short cut methods and a greater desire for standardization and for "speed up" methods all along the line.

Mechanical engineering has made many contributions to the design, development and manufacture of military tanks. The most notable achievements in this field of ordnance equipment have been the increased mobility, high speeds, armour protection, and increased fire power.

WEIGHT REDUCTION

For several years there has been a steady trend toward the reduction of weight in all kinds of machines. This has been possible because of new materials and striking changes in design of many machines which these materials have made possible; these have brought about increasing reduction in weight. These trends are particularly noticeable in the field of transportation involving aircraft, locomotives, and railway cars.

RAILROAD TRANSPORTATION

Probably no field with which the mechanical engineer is connected is growing as rapidly as that of transportation. The national defense program is contributing much to that. All four major fields of transportation have made striking advances.

In the railroad field perhaps the greatest changes have been in high speed, light-weight trains and in the increasing application of diesel-electric locomotives. However, steam driven locomotive speeds have increased to speeds in excess of 100 miles per hour. These changes have brought about higher speeds which in turn have necessitated radical changes in design of cars in order that they may be safer, quieter, and more comfortable. Air-conditioning of passenger trains has become the rule rather than the exception. One of the outstanding changes in car design places the car suspension or springing above the car center of gravity. This is an inherently stable arrangement which results in greater riding comfort and less track stress.

AVIATION

So many changes have occurred in the field of aviation that this subject will be treated more fully elsewhere. (See "Commercial Aviation," pp. 579-88). From the standpoint of mechanical engineering, the following are important. Commercial aviation experienced a full period of 12 months without a fatal accident. The controversy as to the merits of air-cooled *vs.* the liquid cooled motors for military aircraft received a great deal of attention. The "war on weight" brought forth the War Department's announcement that it had developed a new 2,000 h.p. aircraft engine approved by the Air Corps at Wright Field which weighed only 1.25 lbs. per h.p.

The Pratt and Whitney Company are now building for the first time on an assembly line method a 2,000 h.p. airplane engine weighing 1.2 lbs. per h.p. A 4,000 h.p. engine to be built along the same lines and by similar methods is now in process of design.

There seems little doubt that 1941 will see more aeroplanes manufactured, more airports constructed, more man-hours in the air than ever before in the history of this comparatively new form of transportation. During 1940 the Douglas Company built the largest aircraft, weighing 70 tons and with a wing spread of 210 ft.

WATER BORNE TRANSPORTATION

Tremendous activity is going on in the shipbuilding industry; it is expanding rapidly. The past year saw the launching of the *Queen Elizabeth* (988′ x 118.6′ x 68.5′), the largest and fastest ship afloat with a power plant of 215,000 H.P. (See "Merchant Marine," pp. 568-79).

Two new and striking applications of mechanical engineering are the use of the Mercury Boiler for cargo-ships and the introduction of gas turbines for ship propulsion. The use of the mercury boiler indicates a slightly less over-all weight, about the same cost, and would give 0.443 lb. of oil per shaft h.p. hour.

BUSES AND TRUCKS

Transportation by means of trucks and buses likewise continued to expand. Reduced weight, increased speed, greater flexibility in the internal combustion engine field has made imminent the possibility of the application of this type of engine to almost all kinds of service. Trucks are now using engines very similar to airplane design which have increased hp, lower weight, increased pay load, and greater economy. It is highly probable that light, high speed diesel engines soon will be used generally in aircraft and automobiles. (See "The Motor Bus Industry," pp. 561-4).

MATERIALS

Many of the changes in mechanical engineering have come about because of the availability of better and in some cases entirely different materials. The October 1940 issue of *Machinery* lists and gives the purposes and properties of 67 new materials which have brought about striking changes in the design, construction, and application of hundreds of machines. Considerable attention, experimentation, and speculation have been given to the possibility of obtaining atomic energy from nuclear disintegration of matter. This subject is still in the realm of pure science and research, but the problems may be solved and mechanical engineering thus revolutionized.

SMALL TOOLS

There is a distinct trend toward the more frequent use of small portable electric driven tools of all kinds such as saws, drills, vibrators, hammers, etc.

SMOKE ELIMINATION

Mechanical engineers have struggled for years with the smoke reduction or elimination problem. In 1940 St. Louis accomplished the "impossible" by changing its atmosphere from a dark, murky, smoky one to a clear, healthy one. The methods by which this was accomplished are too complicated to dwell upon, but this example shows what mechanical engineers have long known to be true, namely, it can be done.

RESEARCH

A great deal of attention was given to research in many fields applied to mechanical engineering. This work was carried on in Engineering Experiment Stations, Engineering schools, colleges and universities, by the Federal Government and by numerous private research institutions and industries. Just a few subjects dealt with will show the breadth of this work—Superposed Turbine Blades, Velocities in Dredge Pipes, New Specific Heats for Gases, Oxygen Boosting of Airplane Diesel Engines, Nuclear Disintegration, Unbreakable Glass, Lucite, Utilization of Uranium Energy, Producer Gas for Automobiles, Wood Burning Space Heaters, the Bessemer Process, etc.

STEAM

The trend toward higher temperatures and pressures which began years ago in the public utility field has been extended to the industrial field, not only for power purposes but also for process work. This has brought about (a) the production of power at a low heat rate of 5,000 Btu. per kw hr.; (b) comparatively satisfactory service without reserve capacity in the typical industrial plant; (c) improved technique in feedwater treatment made necessary by these higher temperatures and pressures.

A novel type of steam engine designed by Dr. Lentz, an Austrian engineer, was announced, which uses many features of the diesel engine. It is claimed this engine gives a Rankine cycle efficiency ratio of 92 per cent and a steam consumption rate of 6.6 lbs. per ihp. hr. Plans are under way for mass production of two engines of this type, one a six-cylinder type with outputs ranging from 250 to 1,250 ihp. and the other a nine-cylinder type with outputs ranging from 375 to 1,875 ihp. For both types the speeds range from 900 to 2,000 rpm. The weights will vary from 5.6 lbs. per ihp. to 2.2 lbs. per ihp.

STANDARDIZATION

The standardization of units, processes, and methods continues and is likely to increase with the demands of national defense.

Progress has been made in standardization in almost every field connected with mechanical engineering. Some of the most notable steps have occurred in materials handling and in the movement started to prepare a code for evaluating the combustion characteristics of various coals. This would contribute much toward making it possible to burn a large variety of coals with greater ease of operation and lower maintenance costs.

PHOTOGRAPHY

The use of photography not only in research but also in many applied fields continues. It is now extensively used in the analysis of stresses and in the study of the kinematics of machines.

BOILERS, STOKERS, TURBINES, AND ACCESSORIES

The year experienced the manufacture, installation, and use of many new devices used in connection with boilers, stokers, turbines, and accessories. Some of these are air and gas regulators, motor blowers, smoke alarms, air-gas radiotrol, noiseless exhaust head for separating steam and oil, air cooled walls, flyash arrestors, blowoff muffler, insulating blocks, chemical feeders, silica removers, feedwater controllers, boiler tube detectors, stokers, overfeed, underfed reciprocating and proportioning types, combustion controls using photoelectric cells, etc., new insulating materials, refractories, deaerating systems, etc. The importance and final value of these individual advances in the art and science of mechanical engineering is difficult to appraise.

A new alloy (columbium and iron) may make it possible to extend further the temperature at which steam turbines are operated without involving the expensive steels which previously seemed necessary.

HEATING, VENTILATION, AND REFRIGERATION

A great deal more attention was given to domestic heating during the year, and many improvements were made to existing systems. Air-conditioning has become standard practice in industry, and many factories have installed full air-conditioning. The importance of heating and ventilation is increasing. In some industries such as the textile industry new means have been tried. The year witnessed the development of radient heating for comfort in heating and air-conditioning in industry.

EDUCATION

The number of young men preparing themselves for the profession of mechanical engineering continues to increase. The Society for the Promotion of Engineering Education reports for mechanical engineering a total enrollment in institutions of higher learning of 28,609 in 1940. If there is added the enrollment in closely allied fields of industrial engineering, 2,442, and in Aeronautical Engineering, 3,723, there is a grand total of 34,774 students now studying basic mechanical engineering subjects in our engineering colleges.

Two outstanding things have recently occurred in engineering education. First, the Civil Aeronautics Authority has established Flight Training schools in over 500 colleges throughout the country. Nearly all the engineering schools have participated in this training. Second, Congress appropriated in October 1940 $9,000,000 for short engineering courses for training men hastily for defense industries. More than 400 courses are now being taught in 91 engineering schools, and the total enrollment is 36,000.

MANAGEMENT

Many aspects of management were discussed in numerous papers before the American Society of Mechanical Engineers. They dealt with such subjects as Administration Organization in Business and Industry, the Cycle Theory, the Tools of the Personnel Trade, Labor Saving and its Human Problems, Labor Agreements, Aims of Management, Industrial Marketing, etc. It seems clear that mechanical engineers are more and more concerned about the problems and responsibilities of management, and that more and more mechanical engineers are being called to positions of managerial responsibility.

ELECTRICAL ENGINEERING

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SCOPE

The field of Electrical Engineering is concerned principally with the generation, transmission, distribution, and consumption of electrical energy, the manufacture of electrical apparatus, and the electrical transmission of intelligence. These items, with the exception of radio and television which are included in another section, constitute the scope of this section of the record for 1940.

GENERAL

Electrical Manufacturing.—During the first nine months of the year orders booked by the three major electrical manufacturers were respectively: $397,810,151, $261,535,733, and $78,530,846, as compared to $248,581,851, $153,976,777, and $64,938,367 for the same period of 1939. These represent increases of 60, 70, and 21 per cent respectively, an overall increase of 59 per cent. Sales billed by each of these manufacturers during the same period showing an increase of about half that of orders booked, with the total for the three at $528,791,242, a 31 per cent increase over that for the same period in 1939. This large increase apparently is due to at least two major factors—the previous postponement of public-utility expansion because of variables in governmental control, and the rapid expansion of industry due to export war orders and to our own national defense program which was under way early in the summer and continued to expand toward the end of the year.

Power Generation.—The total power generated during 1939 was 123,000,000,000 kw-hr, exceeding the 1938 output by 13 per cent. The total power generated during 1940, based on figures available to Dec. 1, will exceed that of 1939 by approximately nine per cent. During the week ended Nov. 30, 2,795,000,000 kw-hr were generated. This is the highest value of electrical energy ever generated during a single week, and exceeds the previous all-time high established in 1939 by 5.9 per cent. The installed generating capacity at the beginning of 1940 was 37,500,000 kw. Of this capacity 70 per cent represents steam generating units, 27 per cent water-power units, and three per cent units driven by internal combustion and other miscellaneous types of engines. Most significant expansion of capacity occurred during the year in steam generating plants, about 78 of which are increasing capacity by a total of 2,592,250 kw. The trend toward higher pressure and the use of superposed units continued; however, many moderate- and low-pressure condensing units were installed to meet the demand for capacity everywhere. Pressures of 1,000 psi. or higher are being used by about 21 plants with an aggregate of 39.5 per cent of the total capacity increase. Of these installations, 3,600-rpm generators constitute about 83.5 per cent, the remainder being driven at 1,800 rpm. Hydrogen-cooled generators outnumber the air-cooled units by only three to one, showing some adherence to air-cooling even for high-speed units.

Magnetic Storms.—On Easter Sunday, March 24, power and communication systems were affected by one of the most violent magnetic storms ever experienced. Power systems in metropolitan areas in New York and New Jersey appeared strangely to feel the effects markedly, whereas far-flung transmission systems reported lesser disturbances. The Consolidated Edison Company of New York City experienced at 11:48 a.m. a dip of about 1,500 volts on 27-kv buses at several stations. This dip lasted about a minute and recurred about once a minute for more than an hour, decreasing in intensity each time. The dips appeared not to be confined to a particular phase. Observations made by communication organizations showed the worst disturbances on lines using the earth as a return circuit in areas having high earth-circuit resistance. These disturbances took the form of severe voltage fluctuations, in one case as high as 1,200 volts between two points 75 miles apart. This phenomenon apparently is caused by high values of current flowing in the earth's crustal layer, thereby causing high values of voltage drop where the earth resistance was greatest. Although the disturbances were the most severe ever attributed to sun-spot activity, the actual damage to plant facilities was small since protective equipment functioned to isolate endangered devices. Radio transmission apparently was the most seriously disrupted, indicating violent shifting of the ionosphere during the magnetic storm.

ELECTRICAL MACHINERY

Generators.—During the year reports covering 12 years of operating experience with hydrogen cooling on eight synchronous condensers and two alternators showed that the reliability and safety of this cooling method are equal or greater than for air cooling. An increase in output of 25 per cent over that for air cooling is claimed, making hydrogen-cooled units valuable during system load peaks. Notable advances in the design of these machines have been made in the shaft seal which prevents the escape of hydrogen from the machine, and in lubrication at the high speed and bearing pressures used. The method used in changing a machine from air-filled to hydrogen-filled or *vice versa* has been improved so that now machines are evacuated and hydrogen-filled in less than two hours, no scavenging gases being required. Up to Jan. 1, 1940 approximately 1,000,000 kva of hydrogen-cooled generators had been installed. One of the largest size 3,600-rpm machines now under construction is rated at 65,000 kva.

Motors.—Investigation into the causes of noise in induction motors has led to criteria for improved design. This improved design consists of properly adjusting the number of slots in a particular rotor to reduce the objectionable noise harmonics of air-gap flux. Improvements of this type will result in a lowering of the necessity for noise analysis and correction treatment in the field.

Transformers.—The surge characteristics of transformers have been further improved as a result of work done on fundamental design. Recently it was found that impulse strength has been increased, not only by better arrangement of the insulating structure, but also by evacuating the transformer before filling with oil. This removes all gases from the winding insulation and thereby raises the corona point which is the starting signal in insulation failure. It has been found also that, if oxygen is removed from the transformer, higher short-time loads can be carried with the same margin of safety. Hence small transformers are being sealed so that no air can enter and the larger sizes supplied with inert-gas equipment which keeps out the oxygen. Thus these transformers are operating as oxygen-free units, and it is expected that insulation life also will be extended by this practice.

Voltage Regulators.—The widespread acceptance of load-ratio control on transformers and the increased use of transformer-type feeder voltage regulators has brought about the development of these units for lower capacity circuits. Regulators of this type were developed during the year in ratings as small as 12 kva, 2,400 volts, with the conventional 20 per cent regulating range. This range is obtained by the use of 32 5/8-per cent steps. The inherently efficient characteristics of this type of regulator has opened a new era for economical voltage regulation on these smaller capacity circuits.

Rectifiers.—Reports made available during the year indicated the results of operating experience with 13 six-anode six-tank ignitron rectifiers for mining service. These units are portable, being mounted on skids or on low-platform trucks, and are arranged in such sizes that they can be taken down into the mine tunnels. The rectifier tanks and vacuum system are located on one truck, the control equipment on another, and the associated power transformers on a third. Operating experience has shown that these units have a reliability equal to that of other types of conversion apparatus, have an initial installed-cost less than for rotating equipment, and operate at lower cost except where power-factor correction is important.

A recently-developed type of continuously-excited single-anode mercury-arc rectifier, called the "Excitron," was further refined and improved during the year. A 1250-kw, 600-volt rectifier of this type was installed to supply power for a large electrolytic metal-reduction plant. Development has been completed on a new forced-air-cooled demountable steel-tank rectifier. This type, designed particularly for the lower current ratings, requires no cooling water as both the tank and the high vacuum mercury-vapor pumps are arranged for forced-air-cooling. Tests have demonstrated that this type of cooling is ample at ambient temperatures up to 110 F.

CIRCUIT PROTECTION

Switchgear.—It has now become practically standard practice in generating stations and substations to use metal-clad switchgear assembled at the factory. Buses, instrument transformers, disconnecting devices, circuit breakers and secondary control are each inclosed in separate metal compartments in a single metal-enclosed unit for each circuit. Instruments, relays, and control switches are sometimes placed on panels which form the front of the unit. This has the advantage of protecting the primary equipment from outside influence such as water, dust, vermin, etc., and the factor of safety, continuity of service, and safety to operators are a maximum compared to open type equipment. The three major electrical manufacturers now offer metal-clad switchgear with primary equipment and control as a completely factory-assembled unit which may be installed by the user with a minimum of time and labor.

A most interesting development in circuit breakers is pre-stored energy for circuit interruption. In all circuit breakers heretofore used, the energy required to extinguish an arc in a circuit breaker is built up by the arc circuit or the arc itself. In all oil circuit-breakers the arc forms a gas in the oil, the gas being used in various ways, depending on the type of interrupting device, to extinguish the arc. In air circuit-breakers heretofore used, the arc current is used in magnetic blowout coils to blow the arc into special arc chutes.

The new idea is to pre-store the arc-interrupting energy in compressed air. When a relay calls upon the circuit breaker to interrupt a fault current, an air-blast is released before the arc is drawn and this starts to put out the arc the instant it is formed. In this manner the arcing time of circuit breakers has been shortened to values never before experienced; the arc is always extinguished during the first half cycle and usually in 0.005 seconds.

The trend toward greater use of oil-less circuit-interrupting devices has stimulated the development of still another type of breaker using water as the interrupting medium. Hydro-blast breakers, as they are called, have the ability to interrupt capacities equal to those of the older oil circuit-breaker for similar sizes up to 1,500,000 kva. Such a breaker can replace an existing oil circuit-breaker without changes in station design. This type has the advantage of operation in a non-inflammable liquid and its performance will be watched with interest during the next year.

Relaying.—The recent trend in protective relaying has been away from time-delay toward high-speed protection. This is particularly true for internal faults to which instantaneous protection is becoming more universal.

A great deal of fundamental investigation has been carried on with regard to current-transformer saturation during fault conditions, especially that caused by the d-c components of asymmetrical fault currents. The result so far has been the development of new instrument transformers for use with particular high-speed protective relays, especially to increase the accuracy of relay response under transient conditions. Along the same line, there has been considerable investigation yielding useful results on the calculation of instrument-transformer accuracy under transient conditions for older equipment already in service. This information is helping the engineer to better use existing equipment with greater relay reliability, hence also increased sensitivity.

The major manufacturers of protective relaying equipment have placed on the market a new drawout frame for all standard relays. This frame allows the relay to be removed from the panel for test or repair without the necessity of removing connecting wires. The relay is simply drawn from its case, since connection to the circuit is made by means of knife-blade contacts. Since drawout units of automatic switchgear have been in use for some time, this feature applied to protective relays unifies on this basis the principal operating equipment available for a modern substation.

INSULATION

Research into the properties of insulating materials was continued during 1940 with the result that better and better organic compounds are being obtained and that the properties and limitations of the inorganic materials have become more accurately defined. The recent trend in the use of insulating liquids has been away from oil toward the non-inflammable compounds, one of which is pyranol. This liquid, used for some time in capacitors and transformers, has now been applied to induction voltage-regulators and other devices formerly using oil as an insulator and cooling medium.

TRANSMISSION AND DISTRIBUTION

The continued investigation into lighting protection for transmission lines and distribution feeders has led to a clearer view of the economics of lightning protection with respect to outages and to the further reduction in the importance of any single unit to the system as a whole. Information concerning ground-wire shielding of a line has been obtained so that better location of the ground wire may now be made with a more accurate prediction of the results. In some cases one of the three transmission wires is used to shield the other two by placing it above them. Although this installation has not yet had adequate trial time, the performance to date has been very good.

Coupled with this development, but not confined to it, has been the increased use of single-pole circuit-breakers, especially for tie-line protection. This allows partial continuance of power flow over the tie-line during a single-line fault so that synchronism between the coupled systems is not destroyed. High-speed reclosure of the opened line prevents long-time overload and system unbalance.

High-speed reclosure of circuit breakers has continued to gain favor because this procedure reduces the amount of load dropped during a given fault. Relays are available which reclose the breaker as many as ten times after breaker operation due to a fault.

INDUSTRIAL PRACTICE

Control.—Presented to the profession early in the year was a new type of dynamo-electric amplifier called the "Amplidyne" generator. This machine is essentially a two-stage amplifier employing a rotating machine rather than vacuum tubes. It consists of a d-c generator of special design having a pair of short-circuited brushes at right angles to the main power brushes. The first stage of amplification appears between the input winding, or control field, and the short-circuit axis produced by the shorted brushes. The second stage is between the short-circuit axis and the output terminals. Each stage appears to have a power amplification ratio of 100 to 1 at full load, giving a ratio of 10,000 to 1 for the machine. Ratios nearly double this have been obtained with the machine operating at reduced load.

More important than the amplification ratio seem to be the speed of response and the size of power output. Speed of response apparently can be made much greater here than in the conventional contact-type voltage-regulator and exciter system, while values of power output higher than easily obtainable from electronic devices are claimed. This amplifier has been developed to meet the need of industry for the control of large amounts of power by means of a very small input signal. It has brought to the power field the high amplification long realized in the communication field.

A new relay, called the "Slip-cycle

Impedance Relay," has been put on the market for applying the field of a synchronous motor. It operates on the variation in the impedance of the motor field-circuit during the cycle of rotor slip from one pair of poles to the next. When the slip is sufficiently low the relay measures the rotor position with respect to the rotating field by measuring the field impedance. Then when the rotor position is right the field is closed. This cognizance of the effect of rotor position has enabled the synchronization of greater loads than heretofore.

Welding.—The trend in electric resistance welding continued toward shorter and shorter controlled-current pulses. In some cases, in order not to be bound by the limitations in weld-current wave shape imposed by the use of a portion of an a-c wave, manufacturers are using a d-c supply and are controlling the weld current by means of an appropriate choice of circuit constants which are adjustable. One of the novel developments of the year was the introduction of a portable gun-shaped resistance welder. To use it the operator pulls a trigger which starts a series of accurately timed current pulses and, at the same time, exerts pressure between the members to be joined. This device is in use principally in the automotive field where 150 welds per minute are claimed for it.

Power Requirements.—During the year reports on the power requirements of spinning frames in textile mills were made public. A breakdown of the total input into components which are functions of a single variable makes these reports valuable. This information will greatly facilitate the design of higher speed spinning frames with a more economical utilization of driving power and equipment.

Although induction heating has previously found wide application in industry, there appeared in 1940 a new application, that of heating the metal drum gates of the Grand Coulee Dam, the U.S. Bureau of Reclamation project in eastern Washington. It is estimated that each of 11 gates, 115 ft. by 28 ft., will require 215 kva at 50 volts, 60 cycles, 0.8 power factor, to maintain a temperature of 32 F on all surfaces of the gate in an ambient temperature of −28 F.

MEASUREMENT

A new electric gauge has been developed for measuring the thickness of insulation or finish films. It is applicable to the thickness measurement of paints, varnishes, non-magnetic plated films, or any thin non-magnetic film which can be deposited on metal. This instrument operates by means of the change in reluctance of a magnetic circuit with change in length of a non-magnetic gap in the circuit. The accuracy claimed for this gage is ±25 per cent for a thickness of 0.0001 in., and ±5 per cent for a thickness of 0.003 in.

Another new instrument, the "Luximeter," has been made available for measuring the transmission of light through a liquid. A light beam, a photo-cell, and a suitable meter are employed. The photo-cell measures the light transmitted through the liquid in a test tube and this is indicated on the meter. This instrument, being small and therefore easily portable, has found wide application in milk pasteurization, chemical and physical analyses, water-supply treatment, biological determinations, and industrial process control.

During the year a photo-electric watt-hour meter tester has been made available commercially. This device, whose advantages have been known and used in special cases for some years, employs a photo-cell and relays to start, stop, and count the revolutions of the rotating standard watt-hour meter in accordance with the revolutions of the meter under test. Since this testing formerly was done by the eye of an operator, this new instrument increases both the speed and accuracy with which a meter may be tested and adjusted both in the shop and in the field.

The magnetic-vibrator oscillograph

has been equipped with a new and better light source—the high-pressure mercury-vapor capillary lamp. It is approximately twice as bright as the carbon arc formerly used and 12 times brighter than the filament of an incandescent projection lamp. Other advantages of this light source are the higher photographic speed, even greater than is indicated by the above brightness comparison, and elimination of the necessary continual readjustment of arc electrodes.

ILLUMINATION

Highway Lighting.—In the field of highway lighting much progress has been made in both the quality and quantity of installations. Most notable during 1940 was the lighting of the 33-mile Belt Parkway in New York City, and the 110-mile Pennsylvania Turnpike through the middle and western part of that state. The Belt Parkway was lighted with 2,200 sodium-vapor units of the 10,000 lumen size mounted at a height of 23 feet, 150 feet apart, staggered over two lanes of roadway. The Pennsylvania Turnpike was lighted only at interchanges and in tunnels, the longest of which is 6,117 feet. Interchanges are lighted by 10,000-lumen sodium units while tunnels use 10,000-lumen, 250-watt, high-intensity mercury-vapor lamps. These latter are spaced 37 feet, staggered over two lanes, and mounted at a height of 14 feet.

Another development which influenced highway lighting was the sealed-beam headlamp which appeared on nearly all 1940 automobiles. In this lamp the filament is prefocused within a silvered-glass reflector, a lens is placed over the reflector, and the whole unit is sealed, evacuated, and filled with an inert gas. By this process reflectors are kept free from dirt and moisture and the light intensity on the road is raised considerably. This built-in reflector has also been applied to window display lamps, photoflood lamps, and lamps for infra-red heating with nearly revolutionary results.

Searchlight.—A new searchlight has been developed which uses a high-intensity high-pressure mercury capillary lamp in place of the carbon arc formerly employed. The lamp is the 1,000-watt water-cooled type, three of which produce a beam of more than 25,000,000 candlepower at an efficiency of 65 lumens per watt. The great advantage of this type is the absence of the need for continual arc-electrode adjustment and cleaning of residue from the reflector. This searchlight has been applied to commercial lighting and may be of use to the Navy in signalling and in anti-aircraft warfare.

Germicidal lamps, which were first introduced some years ago, found widely increased commercial application during the year. Of special interest is their application to the aging and tenderizing treatment of meats and other foods, and in the sterilization of utensils and dishes in restaurants and soda fountains.

Equipment for high-speed photography by the methods developed over the last few years by H. E. Edgerton at the Massachusetts Institute of Technology has been made commercially available by the Eastman Kodak Co. This apparatus uses a condenser discharge through a special mercury-vapor lamp to produce a very short light flash of high actinic value.

COMMUNICATION

Telephone.—It is estimated that, as of July 1, 1940, there were more than 43,000,000 telephones in service throughout the world. Approximately 93 per cent of these telephones may be reached from any Bell System phone (except for war restrictions imposed by some countries at present). Approximately 65,000,000 telephone calls were made over local or long distance lines during 1940, according to authoritative estimates.

During the year the experimental coaxial cable installed several years ago between New York and Philadelphia was employed for the first time to transmit television signals for broadcast to the public. The occasion was the Republican National Convention held in June at Philadelphia. It was estimated that 50,000 persons viewed some part of the convention *via* television. Since the frequencies required to transmit television programs vary from a few cycles to several million, it was necessary to use a carrier which in this case was 300 kc. The results of the transmission were described by Bell Laboratories engineers as very satisfactory.

An instrument has been developed for easier measurement of the transmission characteristics of a communication circuit over a finite range of frequencies. Heretofore this has been accomplished by making a series of measurements over the desired range. The new instrument, called the "Vector Response Indicator", shows the overall transmission characteristic by means of a special type of pattern on the screen of a cathode-ray oscillograph. The pattern is an indication of both voltage ratio and phase angle associated with the circuit being tested.

Power level and attenuation measurements on transmission circuits have become increasingly important in radio and telephony. An automatic power-level recorder recently developed, called the "Speedomax", operates from a 60-cycle, 115-volt power supply and is accurate to ½ per cent of full scale in the range of 150 to 150,000 cycles. The scale is linear in decibels and the speed of response is claimed to be less than one second without overshooting.

Continued research over a long period has made available new compressed-powder cores for inductance coils. Molybdenum-permalloy cores of this type having very low loss are being used in voice-frequency and carrier-frequency loading coils. The chief advantage is a reduction in the size of loading coils due to the use of the pressed core where otherwise a larger air-cored coil would be used.

Sound.—Hollywood sound engineers have a new tool in a device for temporarily giving to a person, such as a movie extra, the voice of another, that of the star perhaps. This is made possible by two small vibrators placed on the neck near the vocal cords, which are set into vibration according to the signal imposed on the vibrators. Then to have someone else's voice issue from this vibrating throat the person needs only to form the words or sounds in synchronism with the applied signal.

In April, 1940, the first sterophonic reproduction of "enhanced" music was demonstrated to a distinguished audience in Carnegie Hall, New York City, by the Bell Telephone Laboratories. The music was recorded in three sound tracks on film as it was picked-up by three microphones located at center, right, and left sides of the stage. Then this music was played back with the volume of each sound track under the control of the original director who "enhanced" the reproduction by varying at will any or all of the volume controls. At the same time this music was re-recorded, now "enhanced" according to the director's interpretation of tone and volume, and later presented to the audience. This enhancement was done by Leopold Stokowski, who had directed the Philadelphia orchestra in making the original reproductions, and it brought to the audience an even closer approximation of this great director's interpretation of the orchestral works of some of the great composers.

ELECTRONICS

There was developed and placed on the market recently a phototube using a new caesium surface with a sensitivity in the visible range nearly 15 times that of phototubes previously available. The sensitivity claimed for this new tube is 45 microamperes per lumen, for a light source of color temperature 2870 K, and 120 microamperes per lumen to average daylight. In the ultraviolet range the sensitivity of this tube is also extremely high. Two important characteristics of this surface are its high stability in sensitivity over a long period of usefulness and its independence of anode voltage variations over a wide range. Already its application to motion-picture sound reproduction and to photographic exposure meters is under way.

Another development in electronics during the year was the application of forced-air cooling to broadcast transmitter tubes and to metal-tank mercury-vapor rectifiers for the lower power ratings. This has been made possible only through long-continued investigation into the heat transmission between the mercury arc or the incandescent filament and the exterior walls of the tubes. The temperature gradients appear to have an influence on arc-back rate in the mercury rectifier and hence design had to be altered to keep this rate low. The air cooling reduces the insulation difficulties and the complications of water supply to the tubes, hence its adoption is expected to be rapid.

ELECTRICITY IN MEDICINE

The use of x-ray equipment for both diagnosis and therapy still remains the most important application of electricity to medicine. The trend toward the use of higher and higher voltages continued with the installation of two therapy units of over 1,000,000 volts. Such units are now being built in which the tube, transformer and auxiliaries are housed within a single container using gas insulation. X-ray tubes were improved during the year by the application of a barium film to the rotating anode for the purpose of lubrication. A liquid lubricant can not be used because any vaporization of it would spoil the vacuum within the tube. For this reason the barium film has been applied to the ball bearings in which the anode is mounted with a sizable decrease in the bearing friction. This process has made possible a tube which operates not only more quietly but also more economically because bearing friction is reduced and bearing life considerably extended.

Investigation of bio-electric phenomena is being continued with a new high-gain d-c amplifier recently developed. It is claimed that this amplifier has a voltage amplification of 6×10^6, obtained with a noise level, referred to the input, of less than two microvolts over a 5,000-cycle bend. This device is being used to record the action potentials generated by animal or human hearts and muscles which are being subjected to injury.

The transmission of impulses along nerve fibers has been recorded, and studies are being made of stimuli carried along a single isolated nerve fiber. It appears that different types of stimuli are obtained from nerve fibers of different size.

There seems to be some evidence that the measurement of power factor or phase angle for the human body gives information concerning metabolism. One investigator has measured the power factor at frequencies near 10,000 cycles and reports a correlation between the metabolic rate and his phase-angle measurements.

Recently the R. C. A. Manufacturing Company developed a new type of microscope which uses an electron beam instead of the more common light beam. Since the resolution of such an instrument is limited by the wave length of the radiation used to transmit the image, the shorter-than-light wave-length of electrons having certain velocities is made use of here to obtain greater resolution. Lenses formed by electromagnetic or electro-static fields perform for the electron beam the same functions performed by glass or crystal lenses for light rays. A magnification of 25,000 has been obtained with the electron microscope as compared to 2,000 for the best previously available light microscope. Although the idea behind this apparatus is more than 15 years old, its successful embodyment was delayed until 1940. Already the instrument is proving to be of tremendous value in the study of disease.

RESEARCH

For the purpose of research into measurement and standardization in the field of x-ray radiation the National Bureau of Standards recently installed in a new building a 1,400,000 volt constant-potential x-ray equipment. This unit was itself the product of research. It is built up of 10 140-kv generating units in series supplying power to a 10-section x-ray tube of special design. The generator is of the cascade type, a tertiary winding on the transformer of each section supplying power to the next higher section. All ten units are identical, a factor which considerably simplified manufacture.

Scientists recently have frozen light, shipped it, and more than a day later allowed it to be used. This is a novel result of research on certain crystals which, when excited by x-rays while maintained at room temperature, emit light. However, when excited by the x-rays while at —320 F, no light is emitted until the crystals are allowed to warm up. Thus the energy is somehow stored in the crystals at low temperature, and is given off again only when the temperature rises sufficiently.

Research continued during the year on insulating materials, as was previously mentioned, and on the mechanism of lubrication, a very important function in electrical machinery. Research is at present being actively pursued on a process for generating electric power from combustion without the use of an intermediate cycle, such as that of steam or mercury. Such a process has tremendous possibilities.

RADIO

By Lewis M. Clement

The Crosley Corporation

RECEIVERS

Miniature Receivers.—One of the most interesting developments in the field of broadcast receivers was the introduction of the midget portable or pocket size radio. Examples of the small portable receiver have long been known but 1940 for the first time saw their production and distribution in substantial quantities. The development of small tubes with very modest power supply requirements, the modern small loud speaker, as well as engineering familiarity with built in loop performance, made them possible. A great deal of their popularity can no doubt be credited to the clever use of technical skill in metal working and finishing and in plastic molding. Eye-catching styling is an outstanding feature of the pocket models.

Loop Receivers.—The use of the loop receiver, well under way in 1939, continued to expand during 1940. Low impedance loops were introduced in an effort to avoid interference from locally generated electrical disturbances.

Automobile Receivers.—Automatic tuning continued to be a popular feature of automobile receivers with a decided trend, however, toward the indexing type of program selector. Repeated pressing of the single button employed in this system tunes in the pre-set stations in rapid succession. Thus, without identifying themselves, the various stations pass in review, and the preferred program is selected. The year saw the introduction of short wave bands in auto receivers with an indication that there may be more to follow. These receivers provide a number of the higher frequency bands, some of which are of the band spread variety. Permeability tuning with its high gain antenna stage and frequency stable oscillator circuit became the commonly employed system.

Phono Combinations and Records.—Phonograph combinations continued to strengthen their position as an important item in the radio market with increased emphasis on models equipped for home recording. Many of the combinations had switching arrangements so that the microphone provided could be used with the amplifier to constitute a miniature public address system. The growing interest in phonograph models was reflected in record sales which were approximately three times as great as they were in 1939. Two of the largest manufacturers of records reduced their prices on popular numbers by one-third and cut those of the higher priced line in half. For the first time moderately priced blank discs for home recording were available from a number of sources. Most of these record blanks consist of a plastic coating on a metallic or fibre base.

Sales.—Early reports for 1940 show that retail sales of radio receivers were divided approximately as follows:

Type	Units %	Value %
Table Models	45	30
Console Models	8	18
Portable Models	11	8
Auto Models	18	20
Combination Phono Models	6	15

Miscellaneous classifications made up the balance. A total of approximately 10,000,000 radio receivers of all types were sold in the United States during 1939 with a retail value of about $300,000,000. The first six months of 1940 showed an increase of 23 per cent in unit sales with the average gain in value per unit of 11 per cent, making an increase in sales value of 37 per cent over that of 1939 for the same period.

BROADCAST TRANSMITTERS

International Broadcasting.—Considerable activity during the year resulted from the order of the Federal Communication Commission that all short wave international broadcast stations in the United States use 50 kilowatts power and an antenna having a directional efficiency of ten to one. A number of stations are in the construction stage and several are on the air. One of the latter, WLWO, employs a novel push button method of switching from one frequency to another. With this system the changeover can be made in a few seconds. Formerly 15 or 20 minutes were lost when changes were made in order to use the most efficient transmission frequency from hour to hour as determined by the diurnal cycle.

Tube Developments.—A noteworthy development was a power tube for the final stage of the audio amplifier in high level modulation systems. Two such tubes used class "B" without grid current and delivered 40 kilowatts or better at high efficiency. Such a system offers several advantages when compared to the earlier one in which the output stage required a large amount of grid power. It may be said, in spite of the development of high efficiency class "B" radio frequency amplifiers for use with low level modulation, that the advent of these tubes has started a trend toward high level modulation. The last year has seen continued development of air cooled transmitter tubes. It is now possible to obtain 50 kilowatt transmitters employing air cooled tubes exclusively.

Antennas.—The broadcasters operating regional stations were busy constructing protectional antennas. In order to make day and night use of the five kilowatts of power permitted under the new regulations taking in March, 1941, their antenna systems must have such directional properties as will protect other stations on the same channel. At the same time, to be effective, the local territory must be properly covered. Meeting both these conditions has necessitated the relocation of some of the transmitters involved.

Broadcasting Stations.—The Federal Communication Commission reports that on Nov. 1, 1940 a total of

868 broadcast stations were either in operation or had construction permits.

TELEVISION

Early in 1940 the Federal Communications Commission approved of commercial television broadcasting on a limited scale, and several organizations made plans to enter the field. However, the Commission later modified its ruling, putting television back on an experimental basis, but issued construction permits for a number of stations distributed over the country in key cities. At the same time the channels allocated for television were changed somewhat, the lowest frequency channel and the one most used for the early experimental work was assigned to frequency modulation service. As the year closed, the stations which were in operation when the new assignments were made cleaned up the work of changing over, and several of the stations granted construction permits are about ready to go on the air.

Late in August one of the large broadcasting systems (the Columbia) attracted world wide attention by demonstrating television in color. The pickup was taken from 16 mm. Kodachrome using a wide variety of subjects. Comparison was made with an ordinary colorless picture using the same subject matter. The black and white image was said to show slightly better detail but seemed unnaturally contrasty when compared with the colored transmission. Some of the observers stated that the reproduction was equivalent to direct projection of the film in a home movie machine. Sixty frames a second with interlaced scanning was used with a rotating disc having three color filters—red, green, and blue. Three complete scannings of the picture with two revolutions of the color disc complete a cycle. The individual color pulses are segregated and passed through separate amplifiers so that they may be individually controlled. The colored picture seemed to lose much less in a brightly lighted room than did the black and white reproduction.

SERVICE EQUIPMENT

This year saw service men demanding a higher grade of test equipment. The standard signal generator was supplemented by the microvolter with calibrated output. The cathode ray oscilloscope continued to increase in popularity with a trend toward the two-inch tube with its excellent tube to spot size ratio. The same advance was shown in the use of vacuum tube voltmeters. There was a tendency to supplant the well known beat-frequency oscillator by the two-tube type with resistance and capacitance-tuned negative feedback circuit. Such audio frequency generators are employed in particular by service men interested in the public address field. The same men made increasing use of the square wave generator for the analysis of audio systems. The demand for service instruments of this caliber has produced business of considerable value.

PUBLIC ADDRESS SYSTEMS

This field has seen the increasing use of stabilized feedback using potentials derived from the speaker voice coil with further improvement in the quality of reproduction. Greater attention to baffle design has had similar results. Considerable effort has been made to improve the appearance of the apparatus. In permanent installations, such as in schools, there is a growing demand for remote control so that from a number of locations in the building the amplifier may be operated and the desired loud speakers may be selected. The installation of electric carillons and chimes has resulted in considerable activity.

POLICE RADIO

The year witnessed a continued development of two-way systems accompanied by the necessary shift to the high frequency band and considerable interest in frequency modulation with its possibilities of an advantageous signal to noise ratio throughout a reasonable service range.

TECHNICAL PROGRESS IN SOUND EQUIPMENT

By M. C. Batsel

Sound Engineering Department, RCA Manufacturing Company

SOUND MOTION PICTURE RECORDING

During 1940 there were improvements in the performance characteristics of the equipment used as well as in the operating technique with resulting gains in the quality of the sound as heard in the theatres. Lacquer disc equipment for instantaneous playback purpose is finding increased use in checking recordings of music and dialogue. Several studios are recording original track by improved methods such as Class B push-pull track or double-width track. Great interest is being shown in the control-track method of recording and reproduction; one studio released a feature production using this method of reproduction during the latter part of the year.

SOUND MOTION PICTURE REPRODUCING 35 MM

Considerable public interest was shown in 1940 in reproducing spectacles such as mob scenes, storms, gun fire, etc. with more life-like realism. This interest was supplemented with the desire to have music reproduced with the "spread effect" obtained with an actual orchestra. These requirements stimulated developments which were already being enthusiastically carried forward. Very noteworthy results were produced through the use of the control track and associated equipment.

The use of 16 MM equipment for coin-operated movie machines received considerable commercial attention. Several companies have started production on such devices.

COMMERCIAL SOUND

Public address business for the year 1940 far exceeded that of previous years. This increased activity may be accounted for in many ways. In general, the two main contributing factors were the introduction of improved equipment and the general merchandising program which has made people public-address conscious.

The trend continues toward making amplifiers with greater output power and increased flexibility, features which are required in many of the present-day installations. Higher fidelity in loudspeakers is becoming more and more an important item. At present, two-way speakers consisting of a high-frequency unit and a low-frequency unit are being well received. Stress on the present-day microphones is towards the directional characteristics which, by the way, are very important in the well performing over-all system. The field is now realizing more than ever that directional characteristics vary with different types of microphones, and the choice of the proper type unit to obtain the best pickup is very important.

In general, there is considerable trend towards improving the styling of all apparatus. The movement is in the direction of greater stream-lining and away from the very severe appearance of equipment of a few years ago.

BROADCAST SPEECH INPUT EQUIPMENT

Effort has been exerted toward improving the performance and reliability of complete systems from microphone to transmitter and monitoring speaker. This has been chiefly aimed at equipment for use with frequency modulation when higher frequencies. lower distortion, and lower noise level are specified than are currently required for amplitude modulation. New microphones, amplifiers, and loudspeakers have been introduced that are keeping apace with frequency modulation needs.

Continued high interest has been shown in transcription recording and reproducing work, especially that of higher-quality transcription. Several new deluxe lacquer-disc recorders were introduced; these are receiving wide field acceptance. Continued progress is being made in improving the quality and uniformity of lacquer discs.

New portable amplifiers and mixers were introduced that are more compact in size and lower in cost than previous models.

The consolette form of studio assemblies continues to be popular and in great demand.

AUTOMOTIVE ENGINEERING

By Thomas A. Bissell

Technical Editor, *SAE Journal*

NEW FEATURES OF 1941 CAR

An unusual number of innovations are featured in the 1941 passenger cars. Outstanding among those designed to make the cars still easier to operate are a new semi-automatic four-speed transmission introduced by one maker for use with its fluid flywheels; a new semi-automatic clutch, and the power-operated window lifts found on three luxury cars. This new transmission and clutch, plus a wider application of the fluid flywheel and automatic transmissions, indicate a trend toward less and less gearshifting and clutch operation on more and more cars. To ease the work of shifting on all cars in its line that still have to be shifted frequently, one more manufacturer now offers vacuum shift.

Compression ratios continue to increase to help the engines carry their heavier bodies. In "compound carburetion," another maker has hooked up two dual carburetors in a way that produces both greater power and greater economy. A new type of bearing with a very thin lining that can stand up much longer under modern speeds, temperatures, and pressures, appears for the first time in a majority of engines.

Once more bodies are longer, wider, lower and heavier. Concealed running boards or "steps" appear for the first time on a number of 1941 models. The evidence is overwhelming that the exposed running board, in the form it has been known for many years, will soon disappear. Hood locks and direction signals are found on a larger number of cars than previously. A safety feature appearing on four lines of cars is a new rim which is designed to keep the tires on their rims after a blowout.

The only completely new car of 1941, introduced in the low-price field, features a unit frame and body, a front and rear suspension that depart definitely from conventional American design, and a new 75-hp 6-cyl L-head engine.

ENGINES

Many and diverse are the means used to boost the output of the 1941 engines. The method of increasing compression ratios to handle the better fuels of today has been applied generally. New higher-lift camshafts, carburetors, carburetion systems, increased bore or stroke, redesign of combustion chambers including pistons, and decreasing the back pressure of the exhaust system, are among the methods used.

One new powerplant is introduced—a 6-cyl L-head engine rated at 75 hp at 3600 rpm. Bore and stroke are 3⅛ in. x 3¾ in., giving a displacement of

172.6 cu. in. Compression ratio is 6.7:1. It features an inlet manifold cast within the head, four-point rubber mountings, steel-strut aluminum-alloy pistons, full-pressure lubrication, crankcase ventilation, full-length water jacketing, mechanical and vacuum spark control, and crankshaft vibration damper. Pistons have three rings, and the crankshaft has four main bearings. The crankshaft and flywheel assembly is balanced dynamically in a machine employing radio tubes.

New types of main and/or connecting-rod bearings appear for the first time on a majority of 1941 cars. These new bearings feature an extremely thin babbitt lining (about 0.003 in.—which is many times thinner than formerly). An increase in fatigue life and consequently, in bearing life as high as 500 per cent is claimed for the new bearings. A special porous matrix is used to bond the lining to the backing.

CYLINDERS AND VALVES

A higher lift camshaft design on one engine contributes substantially to its 3-hp increase. Cylinder heads of another engine now have a groove extending down the top of the head through the spark-plug indentations to drain off water which might short-circuit the plugs.

PISTONS AND RINGS

As part of a complete redesign of combustion chambers, the profiles of several pistons have been sharply modified. Other changes in pistons and rings are more detailed in nature.

The raised top surface of the dome of all pistons on one line is now hollowed out near the center to form with the cylinder-head a modified spherical-shaped combustion chamber. To permit the lowered roof design of the combustion chamber of another engine, the dome-top piston is replaced by a flat-top piston.

CRANKSHAFTS AND VENTILATION

A new type of crankshaft dynamic balancing machine is an interesting development in this field. Crankshafts themselves have been made heavier in several instances.

In the new machine, crankshafts are balanced dynamically with their flywheel, clutch, belt pulley, and vibration damper. It is provided with an electrical control said to be new to the automobile industry. This assembly balancing is done to eliminate any accumulation of balancing errors in the individual parts and errors in balance due to the fit of one part with another.

The machine consists essentially of two units—a balancing machine and a drilling machine—which are interlocked electrically so that measurements of unbalance observed on the balancing unit are transferred by electrical means to cams in the correction drilling spindles which determine the depth of correction hole required to remove the unbalance.

LUBRICATION

Emphasis in engine lubrication for 1941 is placed on better filtering and cleaning of the oil. One maker has made a new precipitation-type oil cleaner standard equipment on all its engines. It is a full-flow type built into the engine crankcase, located at the inlet to the oil line in the crankcase where all oil must pass on its way to the bearings and working parts. A settling chamber built around the inlet to the oil system in the crankcase, a rounded chamber at the top of the inlet tube, and a flat baffle reverse the flow of the oil and cause the dirt particles to be thrown out and into the settling chamber. Oil below the flat baffle does not again enter the oil stream. The oil intake on one more line of cars has been swiveled on a crank arm so that the screen floats on the surface of the oil in the crankcase. A rotary type of oil pump employing Super-oilite inner and outer rotors has been adopted on all cars of another line.

COOLING SYSTEMS

A double-outlet water pump, a cross-flow radiator, and adoption of pressure cooling by two additional manufacturers feature the 1941 cooling developments. Changes made in the cooling system of one low-priced line include provision for better cooling of exhaust valves in their seats, a double-outlet water pump, and a new radiator core with more fins per inch. The water pump has been changed to provide two discharge passages into the cylinder block. With two outlets in the pump, water is discharged along each side of the cylinders instead of impinging directly on the first cylinder wall as it did when the water pump had one outlet.

The cooling system of another line has been redesigned to include a cross-flow radiator and re-arrangement of the water passages in the cylinder head to improve exhaust-valve cooling. This system is provided with a pressure cap set at 7 lb. per sq. in. Another maker has adopted sealed cooling, using a pressure cap set for 4½ lb. per sq. in. on two models, and 7 lb. per sq. in. on two more. This pressure raises the boiling point about 13 and 21 F, respectively.

In making the chassis of one line interchangeable for use with the 6-cyl or 8-cyl engine, the fact that about 5 in. more space existed between the fan and the radiator core when a shorter 6-cyl engine was mounted than when an 8-cyl engine was installed posed a problem. This problem was solved by using with the 6-cyl engine, a fan shroud or funnel extending back from the rear face of the radiator core until it just enclosed the fan blades. An abbreviated form of the fan shroud has been adopted on the 8-cyl chassis. The fan of one low-priced line of cars now has four backed-off blades designed to eliminate hum.

FUEL SYSTEMS

Fuel-system development for 1941 cars is highlighted by the "compound carburetion" introduced by one maker. It employs two dual carburetors in the same intake manifold. The front carburetor is a complete conventional dual unit. The rear carburetor, however, is provided only with an idling circuit, main circuit, throttle, and special auxiliary throttle or damper valve; the starter switch, choke, accelerating pump, and power bypass are omitted. The damper valve of the rear carburetor is hinged so that it is opened automatically by air or mixture passage and closed automatically by a counterweight. The rear carburetor throttle is not directly connected to the accelerator but is actuated by a pick-up lever with a delayed initial opening so that, when the front carburetor throttle is opened about half way, the rear throttle begins to open. Thus the rear carburetor is controlled both by throttle position and air passage (speed). Since each of the two dual carburetors used is smaller (1 in.) than the single dual carburetor needed for the same engine, it is claimed that this system makes possible greater fuel economy as well as greater power. Engines equipped with compound carburetion require premium-grade fuels. Gasoline tanks on many lines have been made narrower and are located at one side of the frame in order to clear vertical spare-tire wells in sedans.

ELECTRICAL SYSTEMS

The new higher capacity ignition system of one low-price line marks the most extensive change in 1941 electrical systems. Several manufacturers have gone to smaller spark plugs, and one maker has introduced a type with a ridged insulator sleeve. Several devices are announced for preventing the overfilling of batteries. Stop lights are now located in the center of the rear deck lid, and the use of courtesy lights is increasing.

In the higher-capacity ignition system, the coil, condenser, and spark plugs are new. A polarity reversing switch is added and revisions have been made in the distributor and automatic spark advance. The new coil has greater output and is hermetically sealed. A condenser of considerably higher capacity is used across the breaker points, which produces a higher voltage. The polarity reversing switch is installed in the distributor circuit for protection of the breaker points. Spark plugs of the 10-mm size replace the 14-mm equipment on this and several other engines.

The porcelain insulator sleeve of the new spark plugs introduced on another line of cars, is ridged to form "petticoats" to prevent solid accumulation of grease and dirt and to add to the strength and surface length of the insulator. Two additional models have added vacuum spark advance this year.

Non-overfill caps which permit only the proper amount of water to be added to the battery appear on two lines. A novel method is introduced by one maker to indicate when the proper amount of water has been added to these batteries. The battery is filled until a star-shaped opening is covered by the water sufficiently so that it just disappears.

CLUTCHES

A new semi-automatic clutch highlights 1941 clutch developments. This device makes the use of the clutch pedal unnecessary for all normal driving conditions. Use of the clutch pedal is recommended only for starting in cold weather or for employing second gear as a brake when descending steep hills. The clutch is engaged or disengaged in accordance with driving requirements by a vacuum cylinder. This cylinder is actuated by vacuum from the intake manifold and is connected to the clutch-release mechanism in a manner which avoids movement of the clutch pedal during automatic operation of the clutch. A solenoid-operated control valve located in the vacuum line makes the unit operative or inoperative at the will of the driver, through the medium of a switch located on the instrument board. The engagement or disengagement of the clutch is controlled primarily by the accelerator pedal. The clutch disengages when the accelerator pedal is depressed. The clutch of one low-price car is provided with an hydraulic clutch plate which employs four hydraulic shock absorbers and springs. This plate was adopted to quiet operation of the car.

TRANSMISSIONS

The most extensive and spectacular developments in the transmission field for 1941 have been contributed by one large manufacturer. In addition to extending the application of its fluid drive to all except its lowest-price model, this maker has introduced a new four-speed semi-automatic transmission for use in conjunction with the fluid drive on some of its cars; offers vacuum shift for all of its products not using the semi-automatic transmission; and has raised the gear ratio of second gear in all its conventional transmissions from 1.55:1 to 1.83:1 to permit use of second gear for normal starting and get-away.

Detailed changes made in many gearshifting mechanisms have been directed toward making shifting still easier. The new semi-automatic transmission is a four-speed forward and two-speed reverse design. All gears are helical constant-mesh except those used for reverse. Instead of the usual four positions, the gearshift lever has but three (the usual first-gear position is blocked out): "high," "low," and "reverse." Most normal driving can be done with the gearshift lever in the "high" position—including starting, cruising, and stopping—because of the action of the fluid drive and the semi-automatic nature of the transmission.

With the gearshift lever in the high position the transmission can be shifted back and forth from third gear (1.55:1) to fourth gear (1:1), in the same manner as the shift is made between third speed and overdrive in cars so equipped. That is, the car is started in third gear and stays there until the driver releases the pressure on the accelerator pedal when the car speed is over 15 to 17 mph. At this time the transmission is shifted to fourth gear by the action of a vacuum diaphragm unit connected to the engine manifold. When a burst of speed or extra power is needed, pushing the accelerator past the full-throttle position energizes a solenoid which acts to shift the transmission back to third gear by admitting atmospheric pressure behind the diaphragm of the vacuum unit (provided that the car speed is below 53 mph). When the car speed drops below 13 to 15 mph with the transmission in fourth gear, the position of the centrifugal governor causes the solenoid to be energized, and the transmission to be shifted automatically back to third gear. A lower rear-axle gear ratio than is used with conventional transmissions—either 3.54 or 3.73:1—is used in conjunction with the transmission.

Use of the low position of the gearshift lever is recommended only for steep hills, mud, sand, gravel, or rough terrain. When operating in this range, shifts between first and second are made in exactly the same way as are those between third and fourth with the gearshift lever in the high position. The conventional single-plate clutch is used in the usual way only for reverse and when the gearshift lever is shifted. The transmission is provided with a free-wheeling unit which is operative only in first and third gears. Two reverse ratios are available—3.25:1 and 2.10:1. The second ratio can be obtained when the car is above the governor cut-in speed by momentarily releasing the foot from the accelerator pedal.

To give faster acceleration first and second gear ratios have been stepped up on two other lines; for 1941 low ratio will be 3.114:1 and second, 1.773:1; 1940 values were 2.82:1 and 1.60:1 respectively. At 4.005:1, reverse ratio also is higher than the previous year's 3.63:1.

The automatic transmission introduced the previous year by one medium-priced maker remains virtually unchanged with the exception of one improvement. To eliminate the possibility of the car moving ahead when the engine is started, an interlock control is provided, operated by the starter pedal, which automatically moves the hand lever into the neutral position before the engine starts.

REAR AXLES

Changes in rear-axle ratios and increases in rear tread to permit wider rear seats make up the majority of improvements in the rear axle for 1941. Hypoid gears appear for the first time in one low-price line, making their use virtually universal. They permit a reduction in the floor tunnel at the rear of this car of 1½ in.

WHEELS, RIMS, AND TIRES

A new safety rim design is announced by one automobile manufacturer in which the metal between the inside of the tire beads and the drop center has been raised slightly, forming a hump about 0.05 in. high, to prevent the beads from working loose. The purpose of the new design is to prevent flat tires from being thrown off the rim at high speeds, and thus minimize the danger of blowouts. A special tool is necessary to remove a tire from a safety rim.

REAR SUSPENSIONS

Coil springs smaller in diameter but about twice as long as conventional types are employed in the rear suspension of the 1941's completely new low-price car. These springs enclose double-acting hydraulic shock absorbers, and the assembly extends considerably up into the body. Rear leaf springs of one line of cars are now grooved on the under or compression side to reduce the maximum tensile stress and to permit lower spring weights.

Rear springs of one low-price line are 1½ in. longer than formerly, and their effective length has been increased another 2½ in. by reducing from 6½ to 4 in. the length of the saddle which clamps the spring to the frame cross-member. Shackles are now arranged so that they slope inward toward the top of the car. Frequency of the new rear springs is lower than the 1940 frequency, due to the longer spring and change in shackle position.

To cushion spring action over very rough roads and to prevent jar due to spring bottoming, one line has been equipped with auxiliary rubber spring bumpers mounted on the side rail kickup reinforcements. These bumpers have the effect of raising the spring rate as the spring approaches its extreme bottoming position.

FRONT SUSPENSIONS

A design of independent front-wheel suspension, based on the Lancia principle, new to American passenger cars, appears on 1941's new low-price model. It employs vertical king pins 20 in. high. Movement of the collars which carry the front-wheel spindles up and down on the king pins is controlled by coil springs that are longer and smaller in diameter than conventional types. Each collar forms the outer race for six cageless roller bearings, the king pin being the inner race. Each assembly is sealed in grease by means of a corrugated rubber boot. Direct-acting tubular shock absorbers are installed parallel to the king pins.

Frequency of the transverse leaf front spring of two models has been lowered and the deflection rate has been lowered. The lower spring frequency is due essentially to new reverse-type spring shackles. The lower ends of the shackles slope outward at an angle of 25 to 30 deg. This arrangement puts the main leaf of the spring in compression instead of tension as formerly and is said to provide improved damping action for the spring. The 1941 stabilizer of these cars uses swinging shackle connections at the ends of the bar in place of having the bar ends slide in bushings as they did in 1940.

FRAMES

Most 1941 frames have been redesigned to accommodate larger, heavier bodies; to permit further lowering of the cars; and to provide additional stiffness.

STEERING SYSTEMS

One maker of low-price cars has adopted the cam-and-lever twin-pin steering gear, replacing the worm-and-sector type used in 1940. The steering ratio has been increased from 14:1 to 16.4:1. The new low-priced car of 1941 uses a worm-and-roller steering gear. The ratio is 18.2:1. The ball bearings at the steering king pin take both vertical and radial loads. Use of the ball-bearing worm-and-nut type of steering gear has spread to 10 additional models in 1941.

EQUIPMENT

The heating and ventilating capacity of most of the systems offered by manufacturers has been increased for 1941, and their control has been made more sensitive. The air-conditioning system offered by one maker is continued with slight alterations, and a small auxiliary refrigerator is offered in conjunction with the air-conditioning equipment. Hood locks have been extended in application until they appear on a majority of models. Direction signals also appear on new makes this year. A new tire tool for use with its new "safety" rim is introduced by one manufacturer of passenger cars.

GRILLES AND SHEET METAL

Front ends of 1941 cars are much more massive than in 1940 models. Die-cast grilles are considerably heavier as are bumpers and fenders. Hoods continue their longer and lower trend. The one-piece side-opening hood design appearing on one 1941 line highlights the developments in this field. This arrangement is made possible by a new type of hood-latch mechanism located on each side of the hood. To open the hood, one side of the hood is unlatched and the hood raised, the latch on the opposite side serving as a hinge. By this means, the hood may be lifted from either side or removed entirely by unlocking both fasteners. A multi-unit front fender appears on two low-price models. The front fenders are in three pieces, any one of which can be replaced. Maintenance and production advantages are obvious.

BODIES

As has been the case every year recently, longer, wider, lower, heavier, and stiffer are the adjectives that best describe the 1941 bodies. The trend toward greater glass area also continues, but at a decreasing rate. Many of the new bodies follow the general line and construction of the "torpedo" body introduced by one maker in 1940. In addition, a modified type with a rear contour that forms a straight streamlined sweep from the roof to the tail lights, is introduced this year by a number of makers. The body style often called a sedan-coupe is getting strong emphasis in 1941 models. As the name implies, it is a compromise between a sedan and a coupe with two full-size close-coupled seats.

Two-tone treatment of both bodies and interiors is offered in a variety of harmonious colors on most lines. Pounds of plastic per car continue to increase. Most of the new applications have been made in the instrument boards. A new type of body mounting in which the amount of compression that can be applied to the rubber shims is limited, appears on a number of makes.

The old exposed type of running board has not long to live. This year two new types of running boards or "steps" appear—the "concealed" type in which the doors flare out to conceal the board or step when they are closed and the "semi-concealed" type in which the flared-out doors conceal only about half of the running board.

The body of 1941's only completely new car is of the unit frame and body construction. It is an all-welded steel unit with an integral chassis frame and internal bridge-truss construction. Box-section door pillars have a large radius where they join box-section side rails at the bottom. The steel floor pan is flanged at the sides to form a box section with the sides.

As a luxury feature of three models automatic window lifts have been introduced. On these mechanisms, a reversible starter motor coupled to a hydraulic pump with a reservoir provides power operation of all four windows and the division compartment glass in the limousine. Each window is fitted with a hydraulic cylinder which raises or lowers the window at the touch of a hand switch.

NAVAL ARCHITECTURE AND MARINE ENGINEERING

By James L. Bates

Director, Technical Division, United States Maritime Commission

GENERAL PROGRESS

For the fourth consecutive year both merchant and naval construction have increased in volume. Merchant shipbuilding has more than doubled. All former peace-time records in shipbuilding have been exceeded in 1940 and all signs point to further increases.

The shipbuilding program of the United States Maritime Commission has strengthened shipyard organizations and put the shipbuilding industry in a position where any probable requirements of the Government or private operators may be met.

In addition to constructing tankers, cargo vessels, passenger ships, and cargo and passenger vessels, the Commission is reconditioning many of the laid-up fleet for emergency duty and one of these as an additional training ship for the United States Maritime Service.

SHIPYARD PRACTICE

The policy of the Maritime Commission has been to utilize the service of shipyards already in being rather than to encourage the opening of new ones. This has resulted in building a few new ways and in some rehabilitation of existing yards, but such expansion has been on a very limited scale. Only a small financial outlay has resulted and comparatively good efficiency has been maintained.

Some established yards have added to office facilities for clerical and technical personnel in anticipation of large increases in the number of these employees. Some housing projects for yard personnel and their families have been undertaken. The recruiting of adequate technical and artisan personnel for the amount of work in hand and in prospect has constituted a serious problem. An intensive educational and training program for technical and shipyard work has been initiated.

The tendency continues toward the adaptation of yard facilities for large scale assembly units for the purposes of erection. Expansion of welding equipment and improvements in practice have resulted in a greater percentage of ship structure being welded than ever before. Some of the large cargo vessels completed in 1940 have been completely welded, which practice was formerly limited to smaller structures such as barges.

SAFETY

The Maritime Commission has made a study of existing safety rules and regulations as promulgated by various domestic and foreign bodies. These rules and regulations have been correlated and a composite set prepared by the Commission for use in design. Additional safety factors have been embodied in new construction as rapidly as found practical.

A few of these items follow: non-slip tile for the galley and all pantries; door sills reduced to a minimum which will be standard in all vessels; non-slip treads at the top and bottom of all stairs and ladders, in passageways outside all refrigerator doors; cargo holds painted with aluminum paint; lighting facilities increased; greater safety factors required for cargo handling equipment.

CARGO HANDLING

Considerable investigation has been given to this subject. It is still a matter for exhaustive study. Winches and booms whether involving masts or derrick posts are still the basic method for general cargo handling.

Some of the special methods of removing and installing hatch covers, referred to in the discussion of last year, have failed to give entire satisfaction in service. Pontoon type covers for weather decks, particularly forward, are favored. These are handled with the regular cargo gear.

Conveyors and trucks, either in combination or separately, continue to be adopted where suited to particular conditions, while tractors with trailers are efficiently used in ships trading between certain ports. The carriage of loaded freight cars by ships of the *Seatrain* type continues with success. The fleet of such ships has been appreciably augmented as the result of service experience.

There is opportunity for great improvement in handling package freight in hold and 'tween deck spaces. Various aids have been proposed and used such as hold cranes, trolley hoists, block and tackle, etc. No system thus far tried can be accepted as general practice. The attitude of labor both here and abroad has complicated the program of efficient handling and stowage of cargo.

CARGO PRESERVATION

New methods for the preservation of cargo have been successful to a degree which has created considerable interest. Many installations have been put into service and more incorporated in plans and specifications for new construction.

CARGO REFRIGERATION

The number of so-called refrigerated ships built during the year is negligible. Instead, most of the newer ships have been fitted with one or more holds for refrigerated cargo. These installations vary in size from 10,000 to 100,000 cubic feet capacity. Many trades make this requirement an economic necessity.

Air cooling is generally installed for all refrigerated compartments except those designed for extremely low temperatures. The advantage of air cooling is that it is compact, less expensive, provides more rapid cooling, and permits better control of temperature.

LIQUID CARGO

In many trades it is the practice to provide for the carriage of lubricating or edible oils in deep tanks. These tanks are fitted so that they are of advantage in maintaining trim and draft. These are usually fitted and discharged by means of a hose and portable pump equipment although in some cases permanent pumps with permanent suction and discharge lines are installed. The tanks are finished so as to avoid contamination. Hatches are installed in the deck over the tanks so that when oil is not being carried they may be filled with ordinary cargo.

DAVID W. TAYLOR MODEL BASIN

The David W. Taylor Model Basin at Carderock, Maryland, is one of the most noteworthy accomplishments of the year as related to ship design. The new establishment, named in honor of Rear Admiral David Watson Taylor who designed, built and operated the Experimental Model Basin at the Washington Navy Yard, was developed by the U. S. Navy Department for the building and testing of models of vessels for the U. S. Navy, other U. S. Government departments, and the American Merchant Marine, in accordance with the most modern and accurate scientific methods.

The Basin building is constructed on solid rock. It is a vaulted structure, 1,300 ft. in overall length, constructed of reinforced concrete. The main section is 1,188 ft. long, with a clear inside width of 112 ft. meeting a rectangular section 150 ft. wide and 112 ft. long. The building is completely insulated and has no skylights or windows, so as to facilitate the control of temperature conditions. Ventilation is provided by means of electric blowers.

The operating plant consists of a boiler house, sub-station, shop, office and laboratory buildings, model stowage basin, wind tunnel, and model basins proper. There are four model testing basins, ranging from 142 ft. long to 1,168 ft. long, wherein tests of several models of differing characteristics may be carried on simultaneously.

RESEARCH

Experiments have been performed by the U. S. Maritime Commission in the wind tunnel at the Washington Navy Yard in an effort to obtain some criteria of stack heights which would reduce or eliminate the effect of down wash and resulting soot or flue gases on deck.

Introduction of torsional vibration studies for Diesel engine installations has resulted in changes which will minimize wear and reduce maintenance. Tests and calculations have been made covering the engines and couplings both separately and as a unit.

A new method has been developed electrolytically to protect painted ship hulls after launching and while at the fitting-out dock. By this method the current and voltage is properly regulated positively to prevent corrosion by coating the bare spots of the hull with magnesium oxychloride by means of electrodes suspended in the water below the ship. This coating has properties similar to dental cement and is a poor conductor of electricity so that, when one section of the ship is coated, the resistance built up therein causes deposits on other bare portions of the hull, thereby preventing corrosion. This method saves long hours of work before the final painting and minimizes future deterioration.

High pressure piping and high pressure vessels are now being welded extensively and the BMIN rules have been rewritten to permit and regulate this welding. Thermit welding has been introduced for the assembly of large castings.

There is a distinct increase in research for better lubricating oil. An investigation is being conducted by some of the leading oil, turbine, and gear manufacturers in order to develop a lubricant with minimized emulsifying and corrosive properties for marine work.

MATERIALS

Among the miscellaneous materials obtaining some prominence during the year may be mentioned a controlled self-lubricating and preservative feature for rope which provides increased protection against friction and deterioration; rust-proof monel metal for shafting in place of steel shafting to secure longer service; hydroleum #2 for use as a coating for any type of tank, container or surface subjected to cool or cold water as a protection against rust; a gauge for checking fillet welds for jobs which have to meet rigid specifications; aluminum for ladders for use in tankers or in other vessels with inflammable cargo to minimize danger from sparks and the same material for the construction of deck houses and superstructures as in the M. S. *Fernplant*. Aluminum is also growing in favor for the construction of lifeboats.

STYLING AND DECORATION

The new flagship of the United States Lines SS *America*, the Delta Lines' *Delbrasil* and the SS *President Jackson* have offered the first good opportunity of appraising the effect of the "modernistic" movement upon American naval architecture as interpreted by American decorators. These vessels are trim, streamlined, and elegant ships designed to give the maximum of comfort and safety. Their decoration has been designed by talented American artists and craftsmen.

The architecture in these recent ship interior designs lies between the extremes of the "modernistic" and slavish copies of the archeologists. The decorative schemes are noticeable for their restful simplicity and cheerfulness with most of the colors selected from the lighter side of the palette.

American built vessels of today have the atmosphere which attracts and satisfies the greatest of travel conscious peoples, the American public.

For the exterior, long horizontal stripes and bands of color are used to give a feeling of length and speed to the hull. Stack design continues to occupy the attention of both stylists and engineers. Wind tunnel tests and also the experience with newly completed vessels point toward higher and thinner stacks. This is in contrast to the trend of recent years which has been toward low squat stacks to gain a stylish streamlined appearance. There is a tendency toward vertical stacks and kingposts although some designers are working in terms of vertical kingposts and raked stacks. Cruiser sterns and raked bows are favored as being most practical although such sterns are difficult to style properly. Superstructures are generally confined to the amidships portion of the vessel. Poops have almost disappeared, except in ships with machinery aft. Forecastles continue in use.

PROPULSION

An experimental ship is nearing completion, utilizing (for marine purposes) for the first time high pressure steam with moderate temperature (1,200 lbs. and 750° F.) and the regenerative cycle, which principle has been used in land practice. The main advantages are the low fuel rate obtainable, low temperatures in association with high pressures, and reduced machinery weight for large powers. This vessel has an 8,000 S.H.P. unit and is expected to be an outstanding vessel of 1941.

Bids have been opened for two proposed Pacific liners utilizing the above type of power plants. In each vessel there will be two complete power units self-contained in two separated machinery spaces for safety. It is expected that this power plant will be the lightest merchant design per shaft horsepower and the most economical ever built.

Single screw power units have been developed for some new tankers approaching 12,000 S.H.P. using cross-compound double reduction geared turbines. This marks an increase in the amount of power used in single screw ships.

The diesel field showed a number of innovations, the M. S. *Mormacpenn* being the first to have powers in excess of 4,000 S. H. P. transmitted by the use of reduction gears in this country. Four diesel engines are used to drive the single shaft.

Hydraulic and electric couplings for diesel power plants of over 4,000 S. H. P. were introduced to this country recently on the C-2 and C-3 diesel vessels. These couplings have given excellent performance from the standpoint of flexibility, reliability, maneuverability, and of reduced torsional vibration. Both types of couplings are finding a wide application in the marine field.

The diesel fuel oil is now being heated both in the fuel tanks and in the service tanks, and is also centrifuged. This permits the use of a much less costly bunker grade of fuel oil.

Supercharged diesels for direct drive installations are contemplated. The supercharging will be done by a new type supercharger which derives its power from the exhaust gases.

Modifications in the design of waste heat boilers have been made which reduce vibration from exhaust pulsations making for lighter and better installations, while oil-fired boilers are used to supplement these waste heat boilers when in port. These units are highly efficient, light in weight, small in size, completely automatic, and are no more expensive than the conventional type of oil fired boiler used for heating on diesel ships.

NOTABLE MERCHANT SHIPS

SS America.—The *America*, the first vessel designed and constructed for the account of the U. S. Maritime Commission, has been completed and is now in operation. This vessel is the largest merchant ship ever constructed in this country and was intended to run in the North Atlantic trade in conjunction with the *Manhattan* and the *Washington*.

The *America* was built to the highest classification of the American Bureau of Shipping, to meet the approval of the Navy Department, the rules and regulations of the Bureau of Marine Inspection of the Department of Commerce, the requirements of the Convention for Safety of Life at Sea, and the U. S. Public Health Service, and Senate Report #184. The arrangements go beyond the international regulations governing vessels of other nations by exceeding fire-proofing regulations and all applicable requirements applying to flooding, stability, and general safety. The accommodation spaces are of fire-proof construction throughout.

The passenger accommodations are arranged for three classes: cabin, tourist, and third. All show the trend toward increased comfort and spaciousness. The first class staterooms in particular are quite luxurious, being decorated in light and pleasing tones. The furniture is tasteful, and glass has been used to a large extent for dresser tops. The first class public rooms are truely American in spirit as it was felt that foreign period styles had no place in a ship bearing the name it honors. The public space murals for the cabin class as well as the other classes were selected as a result of competition. This competition was also extended to include such items as miscellaneous wall and ceiling decoration as well as the pictures in the staterooms. The tourist and third class rooms are simple but pleasing and represent an advance in this type of accommodation. Both classes are given adequate deck space as well as a lounge, smoking room, dining room, writing room, and children's play room.

All galley equipment is of the latest design and is electrically operated. Serving tables, counters, and sinks are constructed of stainless steel. All deck equipment is electrically operated. Air conditioning is provided for all dining rooms, barber shops and beauty shops. The power plant is the largest yet built in a merchant ship in this country. It consists of two triple expansion double reduction geared turbines with steam delivered by six "A" type express boilers equipped with air heaters at 425 lbs. gage and 725° F. total temperature. On trial the twin screw installation developed in excess of 4,000 S. H. P.

The engine and boiler room arrangement is novel in that the engine room is between the two boiler rooms. The three boilers in each boiler room discharge the gases through the aft stack above the engine room.

C-3 Cargo.—The C-3 cargo ships, both steam and diesel, designed by the Maritime Commission, made their appearance early in the year. They have a speed of 16½ knots with a normal shaft horsepower of 8,500. Noteworthy are the diesel propelled vessels which have four units driving a single shaft through electric couplings. This permits unusual flexibility in operation.

SS President Jackson.—This vessel is a modification of the C-3 design to suit the demand for a vessel having moderate passenger accommodations. Accommodations for passengers and crew are provided amidships. All passenger staterooms are outside rooms and each is provided with a private bath or shower and toilet. The staterooms are roomy, tastefully decorated, and furnished in a pleasing manner with all conveniences.

The public spaces are decorated with carved and painted murals utilizing modern materials and representing scenes typical either of places to be visited or of some home port. These murals were selected as a result of a nation-wide competition. Fire-proof and fire-resistant materials have been used throughout all accommodations. Ample promenade space for the passengers has been provided, including open, covered, and enclosed spaces.

SS Delbrasil.—This ship is another of the intermediate cargo and passenger vessel designs built for a private operator under the provisions of the Merchant Marine Act of 1936. Accommodations are thoroughly modern in design and layout, arranged for the passengers' conveniences. Murals, depicting scenes encountered at the various ports of call, are used for decorating the public spaces. All deck machinery is electrically operated. All equipment of the galley, pantry, and bakery is electrically operated. All sinks, trim and dressers are of monel metal.

Exporter Class Cargo Ships.—These vessels represented the first contract made by the Maritime Commission with a private ship operator for new construction under the provisions of the Merchant Marine Act of 1936. They are of shelter deck design, have three complete decks, have seven holds, are transversely framed, and utilize both welding and riveting. They have a special system for care of cargo which controls ventilation and humidity, thereby reducing cargo damage by condensation, mold, odor, and similar causes.

SS Ohio.—This tanker is one of the first single screw vessels of its type and size (14,140 tons deadweight) to be built in this country, and has a designed speed of 16 knots. Power is supplied by double-reduction gear, steam-turbine machinery rated at 9,000 S.H.P. and has been built to the highest classification of the American Bureau of Shipping and Lloyd's Register of Shipping for carrying gasoline in bulk. Extensive welding was employed in the construction of this vessel, only the side shell and framing and part of the superstructure being riveted.

Seatrain Texas.—The *Seatrain Texas* and its sister ship, the *Seatrain New Jersey,* are developments of two earlier seatrains, which vessels are for the purpose of transporting railroad cars. The principal modifications are in hull form and in the quarters, conforming to the latest practice.

MS Sea Witch.—This is a C-2 type vessel, the first geared diesel ship designed with hydraulic couplings. These are the largest couplings of this type ever built in this country for marine use, being designed to transmit a normal horsepower of 6,000 shaft.

C-1.—The C-1 type is the smallest of C-Type cargo vessels designed and constructed by the U. S. Maritime Commission. These vessels are of two general designs, namely: shelter deck and full scantling. All vessels of the C-Type have a raked stem and a cruiser stern, and to a large degree are of welded construction. These vessels have five holds and have two complete steel decks, *i.e.,* weather and second deck which are fitted fore and aft. A third deck, below the second, is fitted forward of the machinery space.

Two types of propulsion are used; namely, steam and diesel. Accommodations for the crew and eight passengers are provided amidships. Subdivision is arranged on a one compartment basis which provides a degree of safety such that any one main compartment may be opened to the sea as the result of damage with reasonable assurance that the vessel will remain afloat.

SS Admiral.—This is a Mississippi excursion steamer, the largest ever built for the service. It is chiefly noted because of the extensive air-conditioning system, complete insulation of superstructure, and the ball room which has a capacity for 2,500 people. Streamlining of the exterior is extensive, resulting in nearly all decks being enclosed.

Queen Elizabeth.—The *Queen Elizabeth,* a sister ship to the *Queen Mary,* which made an unheralded visit to this country in 1940, is understood to represent the swing of the pendulum from the ultra-conservative design of the *Queen Mary* to more modern practice.

RECONDITIONING AND SCRAPPING

As the result of the European war and the large amount of tonnage destroyed, there is now an increased demand for freight-carrying vessels. This has had the effect of hastening the disposal of the laid-up tonnage for use here and abroad. While there has been relatively little reconditioning, as usually understood, more or less extensive work of this character has been done or is now under way on such ships as: the Baltimore Mail Line's vessels, the *Exochorda, Santa Maria* and *Santa Barbara, Santa Rita, Santa Inez, Cimarron, Challenge, Comet,* etc. The aforementioned vessels have been transferred to the U. S. Navy for use as naval auxiliaries. The *Amerika* has been transferred to the War Department and is to be used for winter troop accommodations and supplies.

Naturally, little scrapping has been done but several ships which have enjoyed great prominence in past years have been turned over to the scrappers. Among these are *Mount Vernon,* originally the *Crown Princess Cecilie* and the *Kaiser Wilhelm II,* successively the *Agamemnon* and *Monticello.* These vessels have not been in operation since the last war when they were used as transports, but have been laid up at Solomon's Island, Maryland.

WAR CONSTRUCTION PROGRAM

Little authentic information of value has as yet been released but a program calling for the building of a large number of cargo vessels in this country to British order and specifications is in its initial stages. These ships are to be of low power, moderate size and dimensions with a single screw, reciprocating engines and Scotch boilers. They are to be either oil or coal fired and of simplified form. Standardization of form, structural machinery, outfit and equipment will characterize the entire group and every effort will be made to eliminate all non-essential features.

The project contemplates handling this program principally, if not entirely, in existing manufacturing plants and in shipyard developments not yet determined. Prefabrication will figure largely in construction, and erection facilities for this purpose will be expanded as necessary.

TRENDS

The European war with its possible future effect on our own country has placed a certain emphasis on features having particular value for naval auxiliary purposes. The effect of this influence is seen in many features throughout various types of merchant ship tonnage. Stems are being developed with the paravane gear in mind. Facilities for the location of guns are apparent. Provisions for signalling in accordance with naval practice are installed. Some tonnage constructed under the Maritime Commission's merchant building program has been taken over by the Navy Department and will be subject to more or less drastic alterations for naval purposes.

Special types of ship conforming in construction and machinery to the general requirements of merchant practice and classification societies are being built for service under the Navy and War Departments. Accordingly, it is to be anticipated that the earmarks of the naval service will be apparent in vessels entering service from now on.

Every effort has been made to control the cost of shipbuilding while at the same time securing vessels which are efficient in detail as well as in overall performance. However, there is already in evidence a slight rise in the cost of merchant vessels. This is real, if not as yet great, and may be expected to become more apparent in shipbuilding and allied industries so long as present conditions exist abroad.

Aside from the effects of the war the following trends, many of which were referred to in the 1940 edition, are still apparent: higher speeds; improved efficiency in machinery plants; more complete electrification of auxiliaries; more thorough precautions against fire; improved sanitary and living conditions; increased interest in air conditioning; more general use of welding in hull structure and elsewhere; further resort to prefabrication with welding prior to erection; more general use of large evaporating plants for all fresh water; increased emphasis on modern standards of interior decoration and styling and greater attention to detail in outfit, equipment and furnishings.

PERIODICAL PUBLICATIONS

Civil Engineering
29 West 39th Street, New York City.
Construction Digest
215 East New York Street, Indianapolis, Ind.
Construction Methods and Equipment
330 West 42nd Street, New York City.
Contractors and Engineers Monthly
470 Fourth Ave., New York City.
Diesel Power
192 Lexington Ave., New York City.
Electrical Communication
67 Broad Street, New York City.
Electrical Engineering
29 West 39th Street, New York City.
Electrical World
330 West 42nd Street, New York City.
Electronics
330 West 42nd Street, New York City.
Engineering and Mining Journal
330 West 42nd Street, New York City.
Engineering News-Record
330 West 42nd Street, New York City.
General Electric Review
General Electric Company, Schenectady, N.Y.
Journal of Engineering Education
University of Pittsburgh, Pittsburgh, Pa.
Mechanical Engineering
29 West 39th Street, New York City.

Motor
572 Madison Ave., New York City.
National Engineer
176 West Adams Street, Chicago.
Popular Mechanics Magazine
200 East Ontario Street, Chicago.
Popular Science Monthly
353 Fourth Ave., New York City.
Power Plant Engineering
53 West Jackson Boulevard, Chicago.
Professional Engineer
8 South Michigan Ave., Chicago.
Radio Communications
19 East 47th Street, New York City.
Radio Guide
551 Fifth Ave., New York City.
Radio-Television Journal and Talking Machine World
1270 Sixth Ave., New York City.
Radio World
145 West 45th Street, New York City.
Railway Mechanical Engineer
30 Church Street, New York City.
S.A.E. (journal of the Society of Automotive Engineers)
29 West 39th Street, New York City.
Sibley Journal of Engineering
Cornell University, Ithaca, N.Y.
Tech Engineering News
Massachusetts Institute of Technology, Cambridge, Mass.
Technology Review
Massachusetts Institute of Technology, Cambridge, Mass.
Universal Engineer
150 Nassau Street, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

Allied Building Metal Industries, 101 Park Ave., New York City.
American Association of Engineers, 8 S. Michigan Blvd., Chicago, Ill.
American Ceramic Society, 2525 N. High St., Columbus, Ohio.
American Concrete Institute, 7400 Second Blvd., Detroit, Mich.
American Construction Council, 28 W. 44th St., New York City.
American Engineering Council, 744 Jackson Pl., Washington, D.C.
American Foundrymen's Assn., 222 W. Adams St., Chicago, Ill.
American Institute of Chemical Engineers, Bellevue Court Bldg., Philadelphia, Pa.
American Institute of Consulting Engineers, 33 W. 39th St., New York City.
American Institute of Mining and Metallurgical Engineers, 29 W. 39th St., New York City.
American Iron and Steel Institute, 350 Fifth Ave., New York City.
American Petroleum Institute, 50 W. 50th St., New York City.
American Radio Relay League, 38 La Salle Road, West Hartford, Conn.
American Railway Engineering Assn., 59 E. Van Buren St., Chicago, Ill.
American Road Builders Assn., National Press Bldg., Washington, D.C.
American Society of Civil Engineers, 33 W. 39th St., New York City.
American Society of Heating and Ventilating Engineers, 51 Madison Ave., New York City.
American Society of Mechanical Engineers, 29 W. 39th St., New York City.
American Society of Metals, 7016 Euclid Ave., Cleveland, Ohio.
American Society of Municipal Engineers, 4359 Lindell Bldg., St. Louis, Mo.
American Society of Naval Engineers, Navy Department, Washington, D.C.
American Society of Refrigerating Engineers, 37 W. 39th St., New York City.
American Society of Safety Engineers, 25 W. 39th St., New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

American Society for Steel Treating, 7015 Euclid Ave., Cleveland, O.

American Society for Testing Materials, 260 S. Broad St., Philadelphia, Pa.

American Standards Assn., 29 W. 39th St., New York City.

American Statistical Assn., 210 Normandy Bldg., Washington, D.C.

American Water Works Assn., 22 E. 40th St., New York City.

Highway Research Board of the National Research Council, 2101 Constitution Ave., N. W., Washington, D.C.

Illuminating Engineering Society, 51 Madison Ave., New York City.

Institute of Radio Engineers, Inc., 330 W. 42nd St., New York City.

National Aeronautic Assn., Dupont Circle, Washington, D.C.

National Board of Fire Underwriters, 85 John St., New York City.

National Fire Protection Assn., 60 Batterymarch St., Boston, Mass.

National Research Council, 2101 Constitution Ave., Washington, D.C.

National Slate Assn., 644 Drexel Bldg., Philadelphia, Pa.

New York Electrical Society, 29 W. 39th St., New York City.

Radio Club of America, 11 W. 42nd St., New York City.

Radio Manufacturers Association, 1317 F St., N.W., Washington, D.C.

Society of Automotive Engineers, Inc., 29 W. 39th St., New York City.

Society of Naval Architects and Marine Engineers, 29 W. 39th St., New York City.

Society for Promotion of Engineering Education, Univ. of Pittsburgh, Pittsburgh, Pa.

The Engineering Foundation, 29 W. 39th St., New York City.

The Society of Motion Picture Engineers Inc., Hotel Pennsylvania, New York City.

Western Society of Engineers, 205 Wacker Drive, Chicago, Ill.

DIVISION XX

GEOPHYSICAL SCIENCES

EARTHQUAKES AND VOLCANOES

By N. H. Heck

United States Coast and Geodetic Survey

EARTHQUAKES IN FOREIGN AREAS

Turkey.—There were two major earthquakes during the year—one in Asia Minor and one in the Balkans. On Dec. 27, 1939 (local time) there were seven terrific shocks, together given the highest rating in the earthquake intensity scale, which caused almost total destruction in the town of Erzinjan, Turkey, and produced huge cracks and crevices and widespread loss of life, in part due to blizzards and floods following. The total casualty list was 32,741 killed and 9,904 injured. Great aftershocks in January and February caused additional damage and loss of life.

Rumania.—On Nov. 9, 1940 (local time) there was a great earthquake centering about 100 miles north of Bucharest in Rumania, near the towns of Foscani and Galati which were severely damaged. In Bucharest a large apartment house collapsed and there was other damage, both from earthquake and fire. Fissures opened in the ground, and it was reported that fires occurred in the oil fields and that towers were thrown down. Railroads and bridges were damaged. The main shock was felt in Bulgaria, Turkey, and Soviet Russia. The depth was reported as perhaps 100 miles, confirmed by seismograph records. There were a number of very severe aftershocks on Nov. 10. There was an earlier shock in the region on Oct. 22.

Other Areas.—During the 12 months there were about 45 earthquakes strong enough to be widely recorded. Those which caused the most damage were Dec. 21, Costa Rica; Dec. 22, Molucca, Dutch East Indies; Jan. 15, 1940, Palermo, Italy; May 24, Lima and Callao, Peru, felt by vessels at sea; July 15, S. Tibet; Oct. 4, Iquique, Chile. An earthquake occurred outside the main belt on May 19 in Zululand, Union of South Africa.

UNITED STATES, ALASKA, AND HAWAII

The only important earthquake during the 12 months ended Nov. 30, 1940 was that of May 18 in the Imperial Valley, California, in which the property loss was about $5,000,000, and there was slight loss of life. Otherwise the shocks were of moderate intensity and rather widespread. Typical earthquakes were those of Dec. 27-28, 1939, southern California; Jan. 5, 1940, Summerville, S. C.; Jan. 28, Buzzards Bay, Mass.; Feb. 8, Central Valley of California; March 25, Shenandoah Valley, near Woodstock, Va.; Sept. 27 and Oct. 22, northern California; and Oct. 10, southern California. In Alaska there were no important earthquakes though there were two in the vicinity of the Aleutian Islands on Feb. 7 and Aug. 21. A series of minor shocks was felt at Fairbanks from Jan. 2 into September. There were the usual shocks of volcanic origin in Hawaii but none of importance.

SEISMOLOGICAL STATIONS

For the accurate location of earthquakes, there are in the United States

55 active seismograph stations and a number of others now inactive which may resume activity, and there are others in contemplation. These stations are operated by the National Government, by educational and scientific institutions and by individuals. There is cooperative activity by some of these stations, notably by the Jesuit Seismological Association, the Northeastern Seismological Association, and by organized groups in the San Francisco Bay region and in southern California. New stations have been placed in operation at Logan, Ut., Overton, Nev., and Pierce Ferry, Ariz. (the last two on Lake Mead).

In addition there are two stations in Alaska, one in Hawaii (in addition to a number for recording volcanic shocks), one in Puerto Rico, and one in the Panama Canal Zone. Two stations in South America are operated by scientific organizations of the United States—Huancayo, Peru (Carnegie Institution of Washington) and Montezuma, Chile (Smithsonian Institution). With some cooperation from the United States the Bermuda seismological station has been kept in operation, and emergency assistance made possible the continued operation of the station of Ivigtut, Greenland. Unfortunately, the plans of the United States Antarctic Expedition to operate a seismological station was prevented by force of circumstances.

Through the cooperation of many of these stations, even though the war has stopped former cooperation of certain foreign stations by immediate telegraphic reports to Washington, the Coast and Geodetic Survey, the Jesuit Seismological Association, and Science Service are enabled to locate and announce almost immediately the location of earthquakes in the western hemisphere and less accurately in the eastern hemisphere. A formerly-existing European similar service did not function during the year. The American service located an average of nearly four earthquakes per month during the year.

EARTHQUAKE LOCATIONS AND OBSERVATIONS

The purpose of seismological stations is to locate earthquakes accurately, both in position and depth, and to determine their relation to geological formations. Very deep earthquakes (several hundred miles) are now readily located. In addition to the stations mentioned, all of which have continuously-operating instruments, there are now in operation strong-motion seismographs, which operate only when set in motion by destructive or near-destructive ground movements, and which have been installed by or in cooperation with the Coast and Geodetic Survey. There are 51 of these in California, four each in Nevada and Montana, one in Utah, and one in the Panama Canal Zone. The information obtained is of engineering, seismological, and geological significance. Records were obtained from eight earthquakes during the year in California and Nevada. The best records were secured from the Imperial Valley earthquake of May 18.

In order to have a complete account of every earthquake, instrumental determinations must be supplemented by reports of observers. In parts of the United States where earthquakes are infrequent, questionnaires are furnished to selected observers immediately after an earthquake. The observers of the Weather Bureau report on earthquake activity. In New England an organized group centering in Weston College, Weston, Mass, cooperates with the Government in securing reports. In the Mississippi Valley region the Jesuit Seismological Association at St. Louis secures the information. In the western mountain and Pacific Coast regions there is a joint arrangement between the Coast and Geodetic Survey and designated state representatives, with cooperation from many public service agencies. In Alaska, there is cooperation with the University of Alaska at College, near Fairbanks.

Though earthquake studies are carried on in many parts of the country there are five principal centers where records are analyzed or applications made of the material furnished. These are Berkeley, Calif. (University of California); Pasadena (Seismological Laboratory of the California Institute of Technology); St. Louis University (Jesuit Seismological Association); New England (now centering at Weston College); and Washington, D. C. (U. S. Coast and Geodetic Survey). Engineering studies are being made at California Institute of Technology, Stanford University, Massachusetts Institute of Technology, and several agencies of the Federal Government, especially the Bureau of Reclamation. Various agencies are working on building codes designed to require greater structural resistance to earthquake damage.

RELATED MEASUREMENTS

Earthquakes are related to crustal movements whether they are sudden movements at the time of an earthquake or slow movements at other times. These movements are determined by means of geodetic triangulation and leveling by the U. S. Coast and Geodetic Survey, and work for this purpose was done during the year in the Lake Mead region and in Imperial Valley. Determination of tilting of the crust, which is a form of crustal movement, has been made at Berkeley, Calif. Other measurements associated with earthquakes in relation to engineering are determinations of periods of buildings and of ground. Work of this character was continued in 1940.

Interested organizations in the United States which deal with the subject from a national viewpoint include the Seismological Society of America and its Eastern Section and the Section of Seismology of the American Geophysical Union. The latter is also the American branch of the Seismological Association of the International Union of Geodesy and Geophysics. This Association partially functioned during the year but was greatly handicapped by the international situation. The American branch of its commission which deals with tidal or seismic sea waves and storm waves has been functioning.

The work has continued at Oxford University on the list of earthquakes of the earth as a whole, known as the International Seismological Summary.

VOLCANOES

There was no very important volcano activity during the year. Moderate activity was reported at Mount Etna in March; at Mauna Loa, Hawaii in April (summit crater eruption), and in July the volcano on Miyaki, Japan, one of the Izu Islands, 90 miles south of Yokohama, erupted, and a number of persons were killed. The lava ran into the sea.

There was continued study by geophysical exploration methods of the Santa Maria volcano, Guatemala, by the Carnegie Institution of Washington and of Asama in Japan by the Earthquake Research Institute.

The usual seismograph tilt and other observations were made in Hawaii. Seismograph, temperature, and other observations have continued to be made in Montserrat, B. W. I.

The Volcanological Observatory of the Netherlands East Indies is still recording sulfotaria phenomena and studying the renewed explosive activity of Krakatoa.

ECONOMIC GEOLOGY

By Charles H. Behre, Jr.
Professor, Northwestern University

THE INFLUENCE OF WAR

To Americans generally, steeped in the tradition of rugged individualism and laissez-faire economics and accustomed to freedom of international trade for supplementing an exceedingly rich material heritage, the shock of 1940 was great. With the collapse of France, laymen and geologists experienced a sudden change in attitude, and American technical journals, like those of continental Europe a decade earlier, began to carry articles dealing with "strategic" and "critical" minerals, those which, according to the U. S. War Department, were either virtually lacking in this country and badly needed or of which a critical shortage might rapidly develop in the event of war.

Thus, in contrast with earlier policies of profit motivation, considerations of state defense were for the first time strongly urged by private citizens and by such technical groups as the National Research Council and the American Institute of Mining and Metallurgical Engineers. Autarchy became a national objective. At the sessions of the Geological Society of America, in December, 1939, and again in 1940, radio broadcasts advocated careful consideration of our mineral policy, with conservation and all the other ear-marks of a national economy as opposed to "free enterprise." And Federal bureaus, such as the Geological Survey and the Bureau of Mines, as well as their counterparts in the various states, entered actively into the preparation for national defense by search for necessary mineral resources and substitute materials.

REPORTS ON ORE RESERVES

Of special interest to this country are reserves of manganese, chromium, nickel, tin, tungsten, mercury, aluminum, platinum, and antimony ores, as well as certain non-metals, such as graphite, mica, nitrates, and quartz crystals. Some of these were being "stocked," where possible, from Latin America. For others, reserves were sought in this country; examples of resulting reports issued by the United States Geological Survey, in part cooperating with the Bureau of Mines, are: *Bulletin 922-I* by White (on antimony in Idaho), *922-A* by Roberts (on quicksilver in Nevada), *922-D* by Thayer (on chromite in Oregon), *922-B* by Ross (on quicksilver in California), *922-F* by Lovering (on tungsten in Colorado), *922-G* by Goddard (on manganese in Montana), and *910-B* by Mertie (on platinum in Alaska). A special multigraph process replaces regular printing and greatly expedites publication of these "Strategic Minerals Investigations." The rise in prices of most mineral products stimulated similar investigations by state bureaus on a less ambitious scale.

LATIN AMERICAN RESOURCES

With these developments has come increasing interest in the mineral resources of Latin America. Cuba, Bolivia, Brazil, and other regions are being visited by geologists of the United States Geological Survey in search of ore reserves, with the hearty cooperation of the Latin-American governments. The U. S. Bureau of Mines has continued and amplified its valuable series (*Foreign Minerals Quarterly*) in which a highly experienced mining geologist, C. W. Wright, describes the resources of individual countries in Latin America. Far from confining themselves to "strategic" minerals, these pamphlets review the mineral economics of each region, frequently with geologic and historical background.

ECONOMICS OF FUELS AND OTHER NON-METALS

Though most mineral production in America has been stimulated by the war, the petroleum industry has actually suffered. Operators, still interested in acquiring reserves, have experienced reduced sales through the European blockade and counterblockade. Germany has turned to Rumania and to home manufacture; other nations have drawn heavily on stocks nearer home or upon regions commercially controlled by themselves, to conserve foreign exchange. Despite national over-production, Illinois, the "enfant terrible," still refuses to consider restrictive measures, and the situation is even more acute now than before the war began.

Most other mineral industries, however, have shared in the general boom. Coal production has risen in the normal manner, parallel to increased steel production and haulage requirements. According to the U. S. Bureau of Mines, the decline in phosphate rock exports has been balanced by increased domestic consumption; the same appears to be true for potash. In brief, in this country almost every non-metallic mineral product, except petroleum, has experienced at least a well-marked stimulation as a result of the war.

REGIONAL DESCRIPTIONS OF MINERAL DEPOSITS

Good descriptions of American mineral deposits of all sorts are still numerous. Among ore districts the more important recent descriptions are those by: Lonsdale, covering the Terlingua, Texas, cinnabar region (*Bull. G.S.A.*, 51, 1539-1626); Goddard, describing the gold-silver deposits of Gold Hill, Colorado (Col. Sci. Soc., *Proc.*, 14, no. 4); Callaghan, on the Searchlight gold district, Nevada (U.S. Geol. Survey *Bull. 906-D*); Johnston, on the gold quartz veins of Grass Valley, California (U.S. Geol. Survey *Prof. Paper 194*); Lasky on the Little Hatchet Mountains (N. Mex. Bur. Mines *Inf. Circ. 7069*). Similarly, thorough reports, issued by the U. S. Geological Survey but concerning non-metallic districts, are the account of the gravel resources of the Washington-Baltimore region (Darton, *Bull. 906-A*), the petroliferous region of Osage County, Oklahoma (Kennedy, McClure, Jenkins, and Bass, *Bull. 900-D*), and descriptions of two coal fields—Mizpah sub-bituminous region in Montana (Parker and Andrews, *Bull. 906-C*) and the Minot, North Dakota, lignite field (Andrews, *Bull. 906-B*).

Of more general interest are: an excellent outline of the geology of Alaska (P. S. Smith: U. S. Geological Survey *Prof. Paper 192*); the classical description of the nation's ground water resources (Meinzer: U. S. Geol. Survey *Water-Supply Paper 836-D*); and Mansfield's pointed summary of the phosphate deposits of this country (*Econ. Geol.*, 35, 405-429).

Among areal descriptions of petroleum fields, details of the Illinois basin and neighboring regions to the north and west were most conspicuous. Outstanding were the volumes of the *Bulletin* of the American Association of Petroleum Geologists devoted largely to the problems of the upper Mississippi Valley (Vol. 24, Nos. 2 and 5) and the excellent symposium on west Texas and New Mexico (Vol. 24, No. 1). Recent regional developments of interest to economic geologists include drilling shallow structures to productive, deeper Devonian horizons in Illinois, extending production in southeastern Michigan by developing the Traverse sands, beginning production from the Forest City Basin with corresponding hopes for Iowa, Missouri, and Nebraska, further development of fault line oil fields in the Gulf Coast, and increasing emphasis upon stratigraphic traps in California.

OF THEORETICAL INTEREST

Hydraulics and Flood Control.—Despite the pressure of world events, theory still receives active consideration. A critical discussion of the concepts of ground-water hydraulics by Meinzer and Wenzel (*Econ. Geol.*, 35, 915-941) has continued a discussion initiated earlier by Hubbert. Legett's recently published *Geology and Engineering* offers a new and stimulating approach to its subject. Engineers should also find much of value for flood control in two papers descriptive of recent severe floods, those of southern California in 1937 and of the Hurricane region in 1938 (U. S. Geol. Survey *Water-Supply Papers 843* and *867*).

Geochemical Methods.—Petroleum geologists have shown lively interest in geochemical methods, aimed to detect hidden pools by several methods, such as soil analyses and radioactivity measurements. The methods of differing investigators are discussed in *Bulletin 24* of the American Association of Petroleum Geologists (see McDermott, 859-881; Bell, Goodman, and Whitehead, 1529-1547; Rosaire, 1400-1463). Of special interest also is an article by Berl (*Bull.* Am. Assoc. Pet. Geol., 24, 1865-1890) in which natural hydrocarbons are assigned to cracking or hydrogenation of carbohydrates.

Ore Deposit Problems.—A text on ore deposits in which the importance of structures is properly emphasized is yet to be written, but W. H. Emmons's recently revised *Principles of Mineral Deposits* is among the very best. Special interest has been shown during the year in the geochemistry of ore mineralization, as evidenced not only by the complexion of the new Committee on Problems of Ore Deposits of the National Research Council, but also by the stimulating articles by: Smith, on laboratory precipitation of certain sulphides (*Econ. Geol.,* 35, 646-658); Dreyer, on the genesis of mercury deposits (*Econ. Geol.,* 35, 17-48, 140-157, with discussion on 465-470, 905-909); by Bandy, on the relation between the weight percentage of anion to cation and the sequence of deposition (*Econ. Geol.,* 35, 359-381, 546-570); by Bastin, and others on the Mississippi Valley ore province (Geol. Soc. Amer., *Spec. Pap. 24*); and by Graton, on the general nature of the ore-forming fluid (*Econ. Geol.,* 35, 197-358).

ECONOMIC GEOGRAPHY

By Richard Hartshorne

Associate Professor, University of Wisconsin

GENERAL

As one fundamental expression of man's development of the earth on which he lives, economic geography is in a constant state of change. Commonly the changes, in most parts of the earth, are relatively slow and gradual, but special circumstances, such as the invention or introduction from the outside of important new techniques, the creation of new routes of cheap transportation into areas previously isolated, the alteration of market areas by changes of international boundaries, the change in cultural character of the human factor in an area by rapid immigration, or the dislocation of previous economic associations caused by war or preparations for war, any of these conditions may lead to rapid change in the fundamental economic geography of particular areas, the utilization of their resources for production.

Geographers concerned with the differential character of production as between different areas of the world, and different parts of those areas, are concerned to study and interpret such changes in local use of land and resources. Because their studies depend both on actual field work and on use of detailed local statistics collected and published less frequently than the more general statistics of national production and trade, their studies of such changes can not be expected to appear until some years after the change. As yet there are essentially no studies of the drastic alterations in the economic geography of many parts of the world resulting from the present dislocation of world trade. Indeed, much work still needs to be done in examining the economic geography of the world that resulted from the changes produced by the first World War and its aftermath.

On the other hand, since any changes in the economy of particular areas that may be stimulated by such special conditions as listed above are changes in an existing economic geography, it is that existing complex of cultural and natural factors that is basic to such changes. An accurate knowledge of the previously existing economic geography is, therefore, not only essential to an understanding of new developments, but may provide a basis for judging what future development is most likely to be successful in any area where change is required.

UNITED STATES

Land Use.—Governmental agencies, in this country as well as abroad, have recognized increasingly in recent years the importance of geographic studies as basic to plans for rational land use. The surveys and reports of the Soil Conservation Service, the Tennessee Valley Authority, the Census Bureau ("Geography in the Census Bureau", by A. W. Von Struve, *Econ. Geogr.,* July 1940, 275-280), the National Resources Committee, and the National Resources Planning Board have included studies by many geographers concerned with various aspects of land use (*e.g.,* U. S. National Resources Planning Board, *Our National Resources; Facts and Problems,* Washington, 1940.) "The Place of Geography in National Planning" is considered specifically by S. P. Chatterjee, (*Science and Culture,* Feb. 1940, suppl. 6-9), and Eugene Van Cleef discusses the problem of scientific land settlement, in connection with a study of "The Finns of the Pacific Coast of the United States" (*Annals Asso. Amer. Geogrs.,* March, 1940, 25-38.)

Great Plains.—The American public has been made familiar with the sub-humid to semi-arid borderland belt of the Great Plains as one of the major problem areas of the United States; a recent report of the National Resources Planning Board studies a major part of this area—*The Northern Great Plains* (Washington, 1940).

Cotton Belt.—Less dramatic, but of far greater importance to the nation is the problem of the Cotton Belt, which B. H. Thibodeaux examines in "The Cotton-poor South" (*Land Policy Review,* July-Aug., 1940, 10-17). L. C. Post's study of "The Rice Country of Southwestern Louisiana" (*Geogr. Rev.,* Oct. 1940, 591-600) indicates that there is little opportunity for the extension of rice production into neighboring areas of cotton production. On the other hand a new and growing industry that should prove of considerable importance in the Gulf Coast states is that of the production of tung oil (G. F. Deasy, "Tung Oil Production and Trade", *Econ. Geogr.,* July 1940, 260-274). In place of linseed oil, about half of which is produced from imported flaxseed (G. F. Deasy, "Geography of the United States Flaxseed Industry", *Journ. of Geogr.,* Sept. 1940, 226-231, manufacturers of paints and varnishes are using increasing amounts of tung oil, most of which is imported from interior China. The cultivation of tung trees in the South, started only in 1925, has been demonstrated to be successful and may be expected to increase rapidly throughout the belt overlapping the southern margin of the Cotton Belt, extending through the cut-over pine lands to the Gulf Coast and central Florida. In addition to the increased land use, the industry causes the erection of oil distilleries and might lead also to a local development of paint and varnish industries. The possibilities for manufacturing development in another part of the South are studied in careful detail by H. F. Otte, *Industrial Opportunity in the Tennessee Valley of Northwestern Alabama* (Columbia Univ. Press, N. Y., 1940). Noting the gradual reduction, if not elimination of wage differentials favoring southern industries, he predicts no great industrial boom, but in view of an assumed tendency for industries to seek less congested areas, this region has a definite opportunity to develop a variety of industries for which the cheap hydroelectric power and adequate space for scattered industrial sites and small worker's communities are significant advantages. Under the sponsorship of the National Research Council a group of geographers located in southern institutions are planning a series of studies of representative areas in the Cotton Belt.

Corn Belt.—One of the most significant crop developments of recent decades has been the introduction of soybeans, grown both as a supplementary feed crop for meat production and as a cash crop, primarily for the soybean oil; M. P. Crompton has examined the development of this crop in the major area of production ("The Soybean Crop of Illinois", *Journ. of Geogr.*, April 1940, 142-150). Loyal Durand's study of the expansion of the Chicago "milk shed" area leads to the significant conclusion that not merely proximity to the market, and natural conditions suitable for dairy production, have determined the area producing fresh milk for the city market, but that the direction of this expansion has been notably influenced by the presence of an already existing dairy industry formerly producing butter and cheese ("Dairy Region of Southeastern Wisconsin and Northeastern Illinois", *Econ. Geogr.*, Oct. 1940, 416-428).

North and Northwest.—One of the major problem areas in the humid part of northern United States is the cut-over forest land of the Upper Lake States. A field study of the situation in one county of this area leads D. H. Davis to the conclusion that in that district the resources were ample to support its present, or even a larger, population if better managed, and he gives specific suggestions for improving the adjustments in farming, fishing, and forestry ("Return of the Forest in Northeastern Minnesota", *Econ. Geogr.*, Apr. 1940, 171-187). The problems of American fishing industries have been considered by R. H. Fiedler ("Fisheries of North America, with Special Reference to the United States," *Geogr. Rev.*, April 1940, 201-214) and H. E. Gregory, ("Salmon Industry of the Pacific Coast", *Econ. Geogr.*, Oct. 1940, 407-415).

THE AMERICAN TROPICS

Caribbean Area.—Several studies of plantation districts in the American Tropics indicate some tendency toward greater diversification of the plantation products, on which the national economy of each unit is based. In Costa Rica, where the coffee production on native farms in the highlands has long since become more important than the banana plantations of the coastal plain, the plantations have been shifting from sole dependence on bananas by increasing the production of cacao, a tendency somewhat checked, however, by the world depression (E. F. Keithan, "Cacao in Costa Rica", *Econ. Geogr.*, Jan. 1940, 79-86). On the British West Indian island of Grenada, on the other hand, cacao exports have declined in recent years from 88 per cent to 47 per cent (H. P. Milstead, "Cacao in Grenada", *Econ. Geogr.*, April, 1940, 195-203).

Bolivia.—The threat of curtailment of shipments of tin from the East Indies greatly increased the importance to the United States of tin production in the highlands of Bolivia, the only other major world source. Lack of cheap power has prevented the introduction of mechanical methods in place of more primitive methods of hand labor under which it is difficult to increase production rapidly. Engineering surveys by William E. Rudolph indicate many excellent opportunities for the development of water power far beyond the needs of the mining and smelting industries; one of these involves the diversion of part of the outflow from Lake Titicaca through a short tunnel to the Atlantic watershed ("Bolivia's Water-power Resources", *Geogr. Rev.*, Jan. 1940, 41-63.)

The Dutch East Indies are of critical importance not merely for the production of tin, but likewise of rubber. In both cases the greater part of the production is not from the densely populated and highly developed island of Java, but from the other islands that form the Outer Provinces of the Netherlands Indies. J. O. M. Broek's study of these areas ("The Economic Development of the Outer Provinces of the Netherlands Indies", *Geogr. Rev.*, April 1940, 187-200) shows that more than two-thirds of the rubber production is on the single island of Sumatra, much the greater part on the coastal plain opposite Singapore. The tin production is largely from several small islands just off the same coast of Sumatra and most of the petroleum, 80 per cent of the petroleum production of the Far East, comes from Sumatra and Borneo. All told, the Outer Provinces which accounted for but a third of the agricultural exports of the Netherlands Indies before the World War, now ship two-thirds of the agricultural exports, as well as nearly all the mineral exports. Their population has approximately doubled in that time, in part from natural increase, in part from migration from over-crowded Java. Since this increase can be expected to continue in the future, the relatively empty areas of the Outer Provinces will be needed to provide land for the native populations, notably the Javanese, rather than for "foreign countries."

Africa.—The agricultural development and future possibilities in Africa are being presented by H. L. Shantz in a series of articles of which those dealing with the basic physical factors, vegetation, and the potential productivity, were published during the year ("Agricultural Regions of Africa", *Econ. Geogr.*, Jan. 1940, 1-47; Oct., 1940, 341-389), introducing the final group of studies in the series published over the past 15 years by *Economic Geography* dealing with the agricultural regions of the continents.

MINERALOGY AND PETROGRAPHY

By Clifford Frondel

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CERAMIC CLAY IN HAWAII

Clay is rare on all islands of the central Pacific area, and this fact is reflected by the absence of ceramic art among the Polynesian people that inhabit the region. Sporadic search has been made for clay-material since the first settlement of Hawaii. Ocean freight rates would greatly favor the establishment of brick, tile or cement plants there if suitable raw material could be found. The absence of clay is primarily due to the largely basic character of the igneous rocks in the Pacific region. The weathering products of these rocks are in general too ferruginous and too low in alumina and silica to dry or fire successfully in ceramic tests. Interest thus attaches to the recent discovery of ceramic clay in Hawaii. The deposits are small but of excellent quality and occur on Oahu, Molokai, and other islands. The clays are restricted to the swampy summit areas of the islands and owe their origin to a local relatively high soil acidity and reducing environment which has facilitated leaching of the deleterious iron-rich constituents. Mineralogically, the Oahu clays appear to be mixtures of illite with small amounts of kaolinite, residual plagioclase, and leucoxene.

SPECTROGRAPHY OF SINGLE CRYSTALS

Observations of fundamental importance to the spectrographic study of the minor foreign elements in natural sulphide and other crystals have been reported by W. H. Newhouse and associates of the Massachusetts Institute of Technology. It is shown that the foreign elements present in single crystals of galena and other crystals are not uniformly dispersed throughout the host crystal, as hitherto assumed, but generally are distributed in adjoining or alternating regions of unequal concentration. These concentration-regions are found on correlated microscopic and spectographic study to be related to the growth surfaces of the host crystal. The differences in concentration result primarily from the unequal absorptive capacity of the faces of the growing crystal for the foreign elements. Silver and silicon are found to be selectively absorbed by the octahedral faces of galena, and relatively more silver is taken up by galena during the later stages of crystal growth. The findings have important bearings on the minerogenetic interpretation of spectrographic analyses, and emphasize the necessity of an adequate and controlled sampling of study material.

CRYSTAL STRUCTURE OF ORTHOCLASE

The structure of the important rock-forming mineral orthoclase has been worked out by quantitative x-ray methods by Taylor and co-workers. The structure is similar in its general features to that of sanidine, and the essential accuracy of the other feldspar crystal structures previously determined by qualitative methods is confirmed. The mineral is monoclinic, and evidence is found that the aluminum atoms are randomly distributed over the sites of the silicon atoms.

ROCK-FORMING MINERALS

A comprehensive program to obtain more accurate chemical and optical data on the common rock-forming minerals was initiated in 1934 by H. Hess and associates at Princeton University. The results of an extended survey of the magnesium-rich orthorhombic pyroxenes have now been described. New optical and chemical data are contributed for a series of orthopyroxenes, and the relations between chemical composition and the refractive indices and optic angle are deduced and presented graphically. It is found that the orthopyroxenes of plutonic igneous rocks normally contain well developed lamellae of diopside. Volcanic igneous rocks and certain metamorphic rocks re-crystallized at high temperatures, on the other hand, ordinarily contain orthopyroxenes without lamellae of diopside. The lamellae are absent in volcanic rocks because rapid cooling has prevented exsolution of the calcium as diopside, but the lack of diopside in the metamorphic orthopyroxenes can only be ascribed to crystallization at temperatures below the limit of solid solubility. These relations afford a useful criterion for determining the possibly volcanic nature of the land masses from which detrital sediments are formed.

COLOR OF MINERALS

Many attempts have been made to discover the cause of the blue tints sometimes displayed by minerals which are intrinsically colorless. The abnormal blue, violet, and pink colors often observed in ordinary rock salt have, in particular, attracted much attention, but no theory of origin has found general support. A fresh suggestion has now been advanced by Friend and Allchin, who have found by spectrographic examination and delicate chemical tests that gold is present in the blue varieties of celestite, anhydrite, and rock salt. The blue color of these minerals thus may be a structural color entirely similar to the blue and violet colors of colloidal dispersions of gold. The variation in color through blue, violet, and pink tints presumably is due to variation in the particle size and concentration of the colloidal gold particles.

THE PROBLEM OF THE CARBONATE-APATITES

The problem of the so-called carbonate members of the apatite group is an interesting one from the viewpoint of the crystal chemist and mineralogist, but also is of importance to the biologist because of its bearing upon the constitution of teeth and bone. The existence of carbonate-apatite in both nature and in organic structures repeatedly has been controverted. Biological chemists and others have maintained that the apparently carbonated material constituting dentine and enamel actually is a mixture of calcium carbonate and hydroxy-apatite. Unfortunately, x-ray and optical methods of study of the inorganic constituents of teeth are hindered by the presence of organic material and by the extremely small particle size of the inorganic material. Direct evidence of admixture is lacking.

Conclusive proof of the existence of carbonate-apatite in nature has now been obtained by McConnell and Gruner, and additional support is found for the contention that a carbonate-hydroxy-apatite (dahlite) comprises the inorganic substance of bone and teeth. The natural material is free from contamination with calcium carbonate, and occurs as a probably hydrothermal deposit associated with fluor-apatite at Magnet Cove, Arkansas. Optically the material differs from the other members of the apatite group in having a higher birefringence. This is caused by the development of asymmetric CO_3 or CO_4 groups in the structure accompanying the substitution of carbon for phosphorus atoms.

A further development of unusual interest in this connection was the discovery late in 1940 of natural crystals of tricalcium phosphate, $Ca_3(PO_4)_2$. X-ray study proves that this substance is rhombohedral and entirely different in structure from apatite. The optical and physical properties, however, are close to those of fluor-apatite. The mineral was found as a low temperature hydrothermal product in a pegmatite vein near North Groton, New Hampshire, and has been designated by the name *whitlockite*. Efforts in the past to synthesize this material by precipitation from solution uniformly afforded a product now known to be hydroxy-apatite. Whitlockite does not appear to be a constituent of either renal calculi of the phosphate type or of teeth and bone.

ICELAND SPAR

A commercial deposit of calcite of optical quality recently has been developed near Harding, Taos County, New Mexico. This occurrence, one of the very few in the United States, is notable for the extremely large size of the calcite crystals. One crystal weighed about 40 tons. Most of the world's supply of optical calcite hitherto has been obtained from Iceland and South Africa.

CRYSTAL HABIT VARIATION

It is a familiar and puzzling fact that the habit of a growing crystal may be made to vary by the addition of impurities to the crystallizing solution. During 1940 several extensive investigations directed at the cause of this effect have been reported. The habit variation is due to the adsorption of the impurities by particular faces of the growing crystal, with a consequent decrease in the rate of growth of these faces. The factors that determine the choice of the selectively adsorbing face are essentially geometrical. In the alkali halides both similarities in the size and shape of the foreign and the crystal ions and similarities in the crystal structures of the impurity and the growing crystal are found to be of consequence. The factors that determine the adsorption of dyes by growing crystals of the alkali halides are, however, obscure, and none of the existing theories of adsorption adequately explains all of the experimental observations.

NEW MINERALS

An unusually large number of new minerals was described during 1940, and only the more important species can be listed here. *Lovozerite* is a new zircono-silicate related to eudialyte from the Kola peninsula, U.S.S.R. X-ray study of ore from mines at Cobalt and Elk Lake, Ontario, has defined a new orthorhombic nickel arsenide, *pararammelsbergite*. *Armenite* is a hydrous silicate largely of barium from the Armen mine, near Kongsberg, Norway. The hydrous sodium and aluminum silicate, *gedroitzite,* hitherto obtained only synthetically, has been found in alkaline solis in the Ukraine. *Goldschmidtine,* a recently described silver arsenide, has been shown to be identical with stephanite. An intermediate member of the scheelitepowellite series found in Madagascar has been named *seyrigite*. *Falkmannite,* a lead sulpharsenide resembling jamesonite, occurs at Minas Geraes in Brazil, Boliden in Sweden, and Bayerland in Bavaria. An unusual rare-earth phosphate found with gem minerals at Klein Spitzkopje, South West Africa, is called *stiepelmannite*. *Kirovite* and *cuprokirovite* are new iron and magnesium sulphates from the Kirovgrad mines, Urals. *Lemnäsite* is a mineral related to dickensonite from Kimito, Finland. A new tantalate from the placers at Tabba Tabba, Australia, is named *simpsonite*. *Gratonite,* named after the mining geologist, L. C. Graton, is a lead sulpharsenide found at Cerro de Pasco, Peru. A new member of the serpentine group, *kolskite,* is reported from the Kola peninsula, U.S.S.R.

Tarniellite and *ablykite* are clay minerals from Tarniello, Italy, and Uzbek, U.S.S.R. A new copper mineral, *bellingerite,* from Chuquicamata, Chile, is one of the four known natural iodates. *Sterrettite,* an aluminum phosphate, occurs with pseudowavellite in the variscite deposit at Fairfield, Utah. Two other new phosphates, *overite* and *montgomeryite,* also have been reported from this locality. *Yamagutite* is a phosphorus-bearing variety of zircon from Yamaguti, Japan. A new isometric tantalate of uranium related to betafite, named *djalmaite,* has been found in pegmatite in Minas Geraes, Brazil. An interesting natural alloy containing osmium, ruthenium, and iridium found with native gold in gravels of the Uryu River, Hokkaido, Japan, is called *ruthenosm-iridium*. Another natural alloy containing platinum, iron, nickel, and copper named *norilskite* occurs in placers near the Norilsk copper mine, U.S.S.R. *Tirodite* is a magnesium and manganese silicate belonging to the amphibole group found with manganese minerals in a metamorphic rock at Tirodi, India. *Chkalovite* is a new beryllium silicate from the Kola peninsula, named after a famous Soviet aviator, Chkalov. *Phosphorrosslerite* and *arsenrosslerite* are new species isomorphous with rosslerite found at Schellgaden, Germany. *Calciogadolinite,* from Tadati, Japan, is a calcium-rich variety of gadolinite. *Clinobarrandite* is a monoclinic polymorph of barrandite found at Manhattan, Nevada.

NEW BOOKS

Catalogue of Meteorites, Second Appendix, by M. H. Hey. British Museum public., London, 1940, 136 pp. Includes a description of all meteorites discovered since the publication of the first appendix in 1927.

Mineral Identification Simplified, by O. C. Smith. Los Angeles, 1940, 271 pp. A tabulation of the physical properties of all known minerals. The work, like others of its kind, is inadequate for the identification of rare minerals and unnecessary for the recognition of common species.

Elementary Crystallography, by J. W. Evans and G. M. Davies. London, 1940, 149 pp., 203 figs., 2nd. ed. A new edition of a non-mathematical text on elementary crystallography, with an added chapter on x-ray methods.

Handbuch der Mineralogie: Gesamtregister, by C. Hintze (K. F. Chudoba). Berlin, 1939, 71 pp. An alphabetical index to the complete set of volumes, containing about 8,000 mineral names.

Gemstones, by G. F. H. Smith. London, 1940, 443 pp., 101 figs. This well known textbook has been almost entirely rewritten, with the addition of new chapters on the pearl, on geographical distribution and price, and on absorption spectra.

Kemp's Handbook of Rocks, by

F. F. Grout. New York, 1940, 300 pp., 6th ed.

Geology of the Anorthosites of the Minnesota Coast of Lake Superior, by F. F. Grout and G. M. Schwartz. *Bulletin 28,* Minnesota Geological Survey, 1939, 119 pp., 49 figs.

Adirondack Igneous Rocks and their Metamorphism, by A. F. Buddington. Geological Society of America, *Memoir 7,* 1939, 354 pp., 50 figs.

Die Enstehung der Gesteine, by T. F. W. Barth, C. W. Correns and P. Eskola. Berlin, 1939, 422 pp., 210 figs. An authoritative and very concise treatment of petrogenesis.

The Petrology of the Skaergaard Intrusion, by L. R. Wager and W. A. Deer. Medd. om Gronland, vol. 105, No. 4, 1939, 335 pp., 95 figs. An important work describing the characters and origin of a large intrusive series of gabbroic rocks in eastern Greenland.

TERRESTRIAL MAGNETISM AND ELECTRICITY

By John A. Fleming

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NORTH AMERICA

Observatories.[1]—The new Sitka (Alaska) Magnetic Observatory of the United States Coast and Geodetic Survey was completed and magnetic recordings were begun in January, 1940. The transfer from the old observatory was accomplished with a loss of only 36 hours in the continuity of records which have been maintained for nearly 40 years. The Survey erected a new variation building at the Tucson (Ariz.) Observatory and installed new magnetographs. The observatories at Honolulu (Hawaii), San Juan (Puerto Rico), and Cheltenham (Maryland) continued in operation.

The Missouri School of Mines was unable to obtain magnetic instruments from Europe, and American instrument-makers were therefore consulted with a view to having copies made of those operated by the United States Coast and Geodetic Survey. The geophysics building at the Colorado School of Mines was completed. The magnetic recordings were continued at the Godhavn (Greenland) Observatory with the help of the Carnegie Institution of Washington and at the Teoloyucan (Mexico) Observatory.

The Carnegie Institution of Washington induction-variometer was operated by the staff of the Cheltenham Magnetic Observatory of the Coast and Geodetic Survey through the first half of April, 1940, thus concluding over four years of experimental operation. It was then removed from Cheltenham and installed as the vertical-intensity instrument of the wide-range magnetograph at the Institution's Department of Terrestrial Magnetism at Washington, thus making possible complete registration of large magnetic variations during intense magnetic storms as well as means for instruction of students. On June 18, 1940, installation of a wide-range magnetograph completely to record intense magnetic disturbances was made at the Cheltenham Magnetic Observatory.

Work preparatory to the installation of the new universal precision electromagnetic standard under construction at the Department of Terrestrial Magnetism of the Carnegie Institution of Washington was begun at the Cheltenham Magnetic Observatory of the Coast and Geodetic Survey. Insulation of the east wing of the Observatory was completed, and thermostatic temperature-control equipment will soon be installed.

Byrd Antarctic Expedition.—The magnetic instruments installed by the

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[1] For details regarding the Institutions in charge of observatory work, see The American Year Book, 1938 (pp. 697-704).

United States Antarctic Expedition in accordance with directions furnished by the United States Coast and Geodetic Survey continued in operation in Little America, and periodic reports on magnetic and auroral conditions were forwarded by radio.

Surveys.—Among the grants in support of special research projects authorized by the council of the Geological Society of America in April, 1940 was one of $3,000 to George P. Woollard, Fellow, National Research Council, Princeton, N. J., who made a gravimeter traverse on a line from Washington, D. C. to Los Angeles. This study by gravitational, geological, and magnetic methods of the deeper parts of the Earth's crust and the relations of anomalies to continental structure should yield knowledge of the fundamental structure of the North American Continent.

The magnetic survey of Canada by the Dominion Observatory was continued.

The magnetic-survey work necessary for the preparation of the isomagnetic charts of the United States and Alaska for the epoch 1940 was completed by the United States Coast and Geodetic Survey.

In Mexico, the National Astronomical Observatory made magnetic secular-variation observations at several stations.

The general cooperative project of geophysical investigation in the region of marked volcanic activity inaugurated in 1939 by the Geophysical Laboratory and the Department of Terrestrial Magnetism of the Carnegie Institution of Washington was continued during the dry season of 1940. An attempt was made to determine the structural details of one or more characteristic valleys of the region by earth-resistivity measurements. This survey was supplemented by additional magnetic secular-variation stations and nearly 500 magnetic-anomaly stations.

SOUTH AMERICA

Observatories.—The Pilar, La Quiaca, South Orkneys, and San Miguel observatories in Argentina, the Vassouras Observatory in Brazil, and the Huancayo Observatory in Peru maintained their geophysical programs during 1940.

Surveys.—The Government of Argentina continued its magnetic surveys with particular reference to secular-variation determinations.

Eclipse Expedition to Brazil.—A joint expedition of the National Bureau of Standards and the National Geographic Society observed the total solar eclipse of Oct. 1, 1940 at Patos, Brazil. While the elaborate equipment for photographing the eclipse was rendered largely useless because of cloudy sky, one of the main items of the program—the effect of the eclipse on the transmission of radio waves through the upper layers of the atmosphere—was satisfactorily done. The actual results, however, will not be known until after careful study of the data obtained.

The opportunity to make ionospheric observations by radio was also taken by the Huancayo Magnetic Observatory of the Carnegie Institution of Washington, which is situated not far from the belt of totality. Similar observations were likewise made in South Africa by an expedition sponsored by Harvard University in cooperation with the Bernard Price Institute of Geophysical Research of the University of the Witwatersrand, Johannesburg.

WORLD SURVEY

Pacific Regions.—The Carnegie Institution of Washington continued its geomagnetic program at the Watheroo Magnetic Observatory in Western Australia, its cooperation with the Apia Observatory, and its cooperation in field-work with the Aerial, Geological, and Geophysical Survey of Northern Australia and the Adelaide Observatory of South Australia.

Magnetic Standards.—The control of magnetic standards was maintained at the Cheltenham Magnetic Observatory of the United States Coast and Geodetic Survey in cooperation with the Department of Terrestrial Magnetism of the Carnegie Institution of Washington. The completion of the new absolute electromagnetic standard instrument for the three components was delayed by the national defense activities.

GEOMAGNETISM

The disturbed conditions resulting from the war threatened to interrupt the communication of important information; for example, the international magnetic character-figure which, ranging from 0.0 to 2.0, is an average of qualitative estimates made at about 50 observatories in all parts of the world. A new scheme for a quantitative measure of magnetic activity has now been introduced, namely, the three-hour-range index (K) indicating on the scale zero (very quiet) to 9 (extremely disturbed) the magnetic condition, a magnetic storm being characterized by $K = 5$ or higher. (See THE AMERICAN YEAR BOOK, 1939, p. 731.) Through joint studies of the Carnegie Institution of Washington and the United States Coast and Geodetic Survey, the K-index was established as a valuable abstract of the magnetograms, providing even single observatories with good estimates of worldwide magnetic conditions. This index is now currently derived from seven American-operated observatories and published weekly by *Science Service,* and gives, for the first time, a detailed homogeneous series for the intensity of solar corpuscular radiation affecting the Earth, useful both for its terrestrial aspect—as in scientific and commercial radio work—and for its bearing on solar physics.

The records of horizontal intensity at the Huancayo Magnetic Observatory, in which the magnitude of the solar daily magnetic variation is exceptional, were analyzed for the whole available series, 1922-39, and a measure for the ionizing solar wave-radiation was abstracted and compared with the relative sunspot-numbers. The correlation-coefficient between them is +0.92 for monthly means, +0.97 for quarterly means, and +0.984 for annual means. These are the closest established relations so far found between phenomena on the Sun and the Earth.

A better understanding of the Earth's general magnetic field and of its secular variation was obtained through a representation of the field by a series of properly disposed elementary magnets. Interpretation of this representation indicates (1) at least a considerable portion of the Earth's magnetism (the residual field) originates at a lesser depth than the central core revealed by seismological evidence and (2) secular change is a continual modification of the residual field, a modification so extensive that in the course of a few centuries its entire structure is completely changed.

A general theory of analysis of surface magnetic fields was developed. This method permits analysis of fields (such as those of magnetic storms) for which the method of spherical harmonic analysis is impracticable.

The magnetic storm of March 24, 1940—probably the greatest magnetic storm ever recorded—was an event of unusual geophysical interest. During this storm the induced earth-currents attained such magnitude that electric power-systems were severely affected, the first time such effects have ever been reported. Computations were made on the intensity of currents which could be produced by magnetic changes and for extreme cases it was found to be sufficient to produce the observed effects on power-lines. Thus, an increased importance of purely scientific research in geomagnetism to practical applications has been shown.

The attainment in March, 1940, of hydrostatic pressures in excess of 200,000 atmospheres at the Geophysical Laboratory of the Carnegie Institution of Washington made possible further measurements on the shift of the Curie temperature. The extension of these results to some of the deep-lying constituents of the

Earth's crust promises important bearing on the Earth's permanent magnetic field.

The lunar influence on the horizontal force at Huancayo was studied in detail. Certain features of that influence were found, all of which may be interpreted by the dynamo-theory as the magnetic field of electric currents induced in the oscillating ionosphere of the Earth's permanent magnetic field. The partial tides connected with the Moon's varying distance from the Earth are clearly recognized in the geomagnetic records, but the relations of the amplitudes and phase-angles of the geomagnetic partial tides to the main semidiurnal tide differ significantly from those in the gravitational tidal forces. The study of geomagnetic tides provides thus a new approach to the study of resonance-phenomena in atmospheric oscillations.

GEOELECTRICITY

The analysis of the diurnal variation in the vertical electric conduction-current in the atmosphere at College, Alaska indicated a local component which is not caused by factors operative in the atmosphere adjacent to the Earth unless there is a heretofore unconsidered factor involved. That component, therefore, is thought to have broader geophysical interest than many local atmospheric-electric phenomena, some of which were subjects of investigation.

From harmonic analyses of the data for 11 years from 1924 to 1934 at the Watheroo Magnetic Observatory for potential-gradient, positive and negative conductivities, air-earth current, ratio of positive and negative conductivities, and the difference between the positive and negative conductivities, the 24-hour wave was found to predominate in all cases. For potential-gradient, agreement was good with the universal 24-hour wave found over the oceans from observations made aboard the *Carnegie*, except for the wet months of May to August.

Observations of the concentration of both uncharged and total condensation-nuclei have been made at different times and places near Washington. From 620 individual samples of both uncharged and total nuclei, the ratio (S) of the concentration of uncharged to that of all nuclei was found to be 0.75 with a standard error of 0.02. This value of S is distinctly greater than that reported for other places, but it is in close agreement with values previously determined at Washington with other equipment. No significant evidence of a dependence of S upon time, place, or concentration of nuclei, such as reported by some observers, is provided by these data. It is concluded that, before too much reliance is placed on the differences in S reported from various places, differences in the instruments, observational procedure, and method of analysis must be considered.

Ionization as measured with a thin-walled chamber in a closed room is less when large ions are numerous than when they are few in number. Tests have shown that the diminution in ionization can not be explained on the earlier proposed hypothesis that large ions falling out of the air carry radioactive material with them and consequently tend to clear the air of ionizing material. The phenomenon thus remains unexplained and invites additional experimental work.

Experiments on large ions from gas flames indicate that the recombination-coefficient is not a constant, but diminishes from about 15×10^{-9} initially to about 0.6×10^{-9} in about 90 minutes after the ions are formed. This diminution is attributed to a gradual increase in the average size, through concentration, of the large ion.

In an investigation of the electrical and meteorological development of thunderstorms conducted by R. E. Holzer and E. J. Workman of the University of New Mexico, the electric-field intensity of the Earth's surface under the influence of charged clouds is recorded simultaneously at a number of widely separated stations. The recorded values of the intensity are correlated with motion pictures of the development of clouds taken from a distant point in such a way as to locate the cloud-elements with respect to the electric-field instruments. The photographs taken in this manner show the development from the time of the first appearance of condensation-forms and through the entire history of the storm over the region. With improvements of their instruments and wider distribution of stations, information will be sought on earlier processes of charge-separation, quantities of charge-transfer in discharges, charge-distribution in well-developed storms, and the possible connection of activity of thunderstorms with maintenance of the Earth's charge.

In connection with the volcanological investigations of the Geophysical Laboratory in Guatemala, two projects were assumed by the Department of Terrestrial Magnetism: (a) The design and construction of a portable "ionizationmeter" for providing information on the variation with position of the amount of radioactive matter in the air and of that in the Earth near the surface; (b) surveys of the electrical resistivity of earth, particularly as a function of depth at two sites in the highland volcanic region of Guatemala. Preliminary analyses of the results obtained show a very uniform structure and indicate that the beds of volcanic ash are of a very great depth.

COSMIC RADIATION

At the Department of Terrestrial Magnetism of the Carnegie Institution of Washington, S. E. Forbush continued analysis of the world-wide effects at several stations and found excellent agreement between these effects for Huancayo and Teoloyucan and between those for Cheltenham and Christchurch. He also found a significant difference in the general trend of cosmic-ray intensity at Huancayo and Teoloyucan from that at Cheltenham and Christchurch which may indicate an important change in the latitude-effect with time. Analyses of the 27-day waves in cosmic-ray intensity were also extended to include those data for 48 complete solar rotations at one pair of stations and 40 complete rotations for another pair. This material provides for a more critical search for the existence of a persistent 27-day wave in cosmic-ray intensity at high latitudes, the existence of which would indicate a permanent solar magnetic field.

Prof. V. F. Hess of Fordham University devoted his attention to meson-disintegration and air-mass effects at sea-level and to preparations for obtaining a series of cosmic-ray measurements on board ship from New York to Valparaiso.

Dr. Thomas H. Johnson of Bartol Research Foundation directed his attention to obtaining further evidence of the nature of the primary cosmic radiation before its encounter with the Earth's atmosphere; to investigating the processes of interaction of mesons with matter; to studying the duration and factors affecting the lifetime of a meson before its final spontaneous disintegration into an electron; and to obtaining further evidence of the production of mesons by protons. At the same Foundation, Dr. S. A. Korff, through radio balloon observations, obtained material for further investigation of the production of soft rays and the influence of surrounding matter on measurements in the stratosphere. He found it necessary to standardize neutron-counters and sources of neutrons in connection with the investigation of neutron-intensities.

Prof. R. A. Millikan and his associates at the California Institute of Technology carried out the following investigations: measurement on 45 balloon-flights in India, extending nearly to the top of the atmosphere, of the latitude-effect in the equatorial belt; the construction of a large cosmic-ray cloud-chamber of high resolving power to obtain more accurate data on the mass and nature of the meson; repetition with modern and improved techniques of the measurements of the absorption-coefficients for cosmic rays in air and water, in the hope of being able to compute from these data the lifetime of the meson; and completion of the sea-level measurements between Seattle and the Straits of Magellan for the study of the seasonal effect on cosmic-ray intensity at sea-level and the interpretation of this effect in terms of the lifetime of the meson.

At the Massachusetts Institute of Technology, Prof. M. S. Vallarta has undertaken the investigation of the motion of cosmic-ray particles in the magnetic field of the Earth, the theory of magnetic storms, and allied problems.

Under the direction of Prof. A. H. Compton at the University of Chicago, there was completed a four-year investigation of the intensity of cosmic rays on the Pacific Ocean by D. H. Loughridge and Paul Gast, with the cooperation of the Northland Transportation Company, between Seattle and Juneau. These studies led to a correlation of the fact that cosmic radiation is more intense in winter than in summer with the difference in atmospheric temperature. The production of the mesons at high altitudes was found to increase rapidly with altitude. Low-energy mesons are of special interest because they are distinguishable in mass and ionizing power from electrons. The properties of the meson were further determined by the use of a large cloud-chamber in a powerful magnetic field and the continuation of balloon experiments. Professor Compton's associates also gave considerable time to the study of changes in cosmic-ray intensity using chiefly the data obtained from seven Model-C recording ionization-meters.

At the invitation of the United States Antarctic Service, a program of cosmic-ray observations to be made on the first United States Antarctic Expedition was prepared by Dr. S. A. Korff. This program, now being carried out, includes the following observations: (a) Latitude-effect observations, two cosmic-ray meters being operated on board the U.S.S. *North Star* on its journey as supply-ship of the Expedition; (b) variation of cosmic-ray intensity with elevation—altitudes of 21,000 feet having been reached in airplane flights in Little America; (c) long-period installation. Two Millikan-Neher type meters were installed in Little America for operation during 1940. The records from these, on their return to the United States, will be analyzed for fluctuations correlating with magnetic storms, auroras, and external temperature. The following results have already been obtained: the latitude-effect showed the familiar "knee" in the cosmic-ray intensity at geomagnetic latitude 38° south. South of this point the cosmic-ray intensity continued to rise, as far as Little America (77° south geomagnetic latitude). No adequate observations have hitherto been made south of 45°. A preliminary calculation indicates that the ratio of electrons to mesons at sea-level does not vary with latitude south of 40°, and this, taken in conjunction with external temperature, suggests that all of the cosmic-ray electrons at sea-level are secondaries produced by the mesons.

A symposium of three invited papers on aspects of current research of cosmic rays, organized by the American Physical Society, was held at the University of Washington, Seattle, on June 19, 1940. In this symposium H. A. Bethe, A. H. Compton, and R. A. Millikan were participants.

IONOSPHERE

Analysis of the F_2-region of the ionosphere has shown that over the period of a year there are three major changes: (a) seasonal change with the maximum of ion-density occurring near midwinter in both northern and southern hemispheres; (b) annual change having a maximum about January in both hemispheres, the source of which is not understood; and (c) change with sunspot-number which appears to go through a complete cycle in phase with the sunspot-cycle. All these variations are major in character and, when combined, determine the average ion-density at a particular location. Superposed on this average are the daily and other short-period variations which change in magnitude depending upon time of year, latitude, sunspot-number, and character of simultaneous magnetic activity. The extent to which the magnitude and character of daily variations is related at two stations on a particular day must be evaluated in determining the origin of such variations.

The great magnetic storm of March 24, 1940 was associated with ionospheric changes of almost unique character. At the beginning of this disturbance, the F_2-layer was carried upward and disappeared. An unusual feature of this disturbance at Huancayo, where it occurred near midday, was the formation of a new F_2-layer in place of the old. Because the original ion-density of the region was reduced to a low value, it may be regarded as an un-ionized atmospheric region which is suddenly exposed to uniform solar radiation. This offers an unusual opportunity for determining the rapidity with which new ionization is produced and existing ionization is destroyed.

The important but troublesome problem of reducing measured virtual heights of ionospheric regions to actual heights at which they exist was greatly simplified by development of graphical methods at the Department of Terrestrial Magnetism. The older methods were impractical of application to more than a very few records; the new method permits mass-reduction of observations to actual heights, so that the general knowledge of the ionosphere has been greatly extended.

Studies of the *E*-region are being pursued vigorously since it appears that within this region of the atmosphere much of the solar influence is translated into geomagnetic effect. At present this investigation is assuming the following forms: (a) Comparison of continuous observations of *E*-region ion-density at different locations with existing theories to determine the adequacies or deficiencies of theories, and (b) investigations of special conditions during solar eclipses. During the early stages of the eclipse of April 7, 1940, maximum ion-density was observed to decrease more rapidly than predicted from normal-day conditions, which would indicate that the Sun is not giving out the ultra-violet ionizing radiation uniformly from all parts of its surface.

The time and intensity of radio fade-outs, given by ionospheric records, provide investigators of magnetic phenomena with data on fade-outs preceding major magnetic disturbances. From these the geomagnetician can calculate the velocities of corpuscular streams thought to emanate from active solar areas and to be responsible, as these streams envelop the Earth, for magnetic disturbances.

EIGHTH AMERICAN SCIENTIFIC CONGRESS

The Eighth American Scientific Congress was held in Washington, D.C., May 10-18, 1940 under the auspices of the Government of the United States. The two cardinal purposes of the Congress were: (a) to advance scientific thought and achievement; (b) to assist in celebrating the fiftieth anniversary of the Pan American Union. The general program was presented in 11 sections, of which Section III was devoted to the geological sciences and Section VI to the physical and chemical sciences. In the latter section, papers dealing with geophysics, meteorology, radio transmission, and cosmic rays were presented. Resolutions regarding the extension of cosmic-ray research and geomagnetic surveys and observatories in the American Republics were adopted.

PUBLICATIONS

Geomagnetism, in two volumes, by S. Chapman and J. Bartels, research associates of the Carnegie Institution of Washington, was published by the Oxford University Press in July, 1940. This important work, together with *Terrestrial Magnetism and Electricity* published in August, 1939, marks an epoch in the history of geomagnetic and geoelectric sciences.

Geophysical Exploration by C. A. Heiland was published by Prentice-Hall, Inc. This work is a comprehensive survey of the whole field of geophysical exploration in which the subject is presented in broad perspective, emphasizing the relations, differences, common features, and, above all, the fundamentals of geophysical methods.

The Association of Terrestrial Megnetism and Electricity of the International Union of Geodesy and Geophysics published its *Transactions of the Washington Meeting, September 4-15, 1939* by A. H. R. Goldie and J. W. Joyce. This impressive volume of 556 pages contains the detailed minutes, national reports, communications, proposals on various subjects for discussion, resolutions, and personnel of committees and reporters. It presents a good summary of the world activity in terrestrial magnetism and electricity during 1936-39. No small credit is due the secretary, Dr. Goldie, for the publication of this important contribution to geophysics in Great Britain despite the unfavorable conditions and economic restrictions resulting from the war.

Geophysical Prospecting for Oil by L. L. Nettleton was published by McGraw-Hill Book Co., Inc., a work intended for the student or lay reader rather than the geophysical specialist.

The *Quarterly Journal of Terrestrial Magnetism and Atmospheric Electricity,* published by the Johns Hopkins Press, completed during 1940 its 45th annual volume. Besides original articles, it includes sections on magnetic storms, magnetic character-figures, ionospheric data, sunspot-numbers, notes, reviews, and bibliography.

The Transactions of 1940 of the American Geophysical Union, issued in four parts, contain papers and reports presented at the 21st annual meeting of the Union, among which are those of its Section of Terrestrial Magnetism and Electricity which indicate the progress of work in terrestrial magnetism and electricity in North America.

Science Service continued publication of the American Ursigrams of geophysical data through its weekly *Research Aid Announcements,* including the American magnetic character-figures for each Greenwich half-day and the three-hour-range indices (K-numbers). The three-hour-range indices (K-numbers) were prepared for all observatories, beginning with Jan. 1, 1938. The 1937 indices are now being prepared.

The 37th annual report of the Director of the Department of Terrestrial Magnetism of the Carnegie Institution of Washington (issued December, 1940) summarizes the work done in terrestrial magnetism and electricity during the year ended June 30, 1940, and contains a complete list of papers published by members of the staff during the report-year.

METEOROLOGY AND CLIMATOLOGY

By Robert G. Stone

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NATIONAL DEFENSE AND METEOROLOGICAL INSTITUTIONS

The national defense program has deeply affected all the meteorological institutions of the country. The demand for trained meteorologists suddenly multiplied many fold last summer as the Army and Navy began their great expansion. In as much as normal demands from colleges, the

Weather Bureau, and the air lines had already absorbed practically all the available trained men, it was necessary for the military services to expand their own training schools for meteorologists and to subsidize the training of a large number of civilians by granting scholarships for one year's course at one or other of the leading university departments of meteorology. Several hundred men are already studying under this arrangement and their services are optioned to the Army or Navy upon completion.

Notwithstanding that new departments of meteorology were opened in September (at the Universities of Chicago and California at Los Angeles) the educational facilities are being severely taxed. Some additional instructors have been drawn from the Weather Bureau's scientific staff. As all the teachers are fully occupied with teaching duties and the Weather Bureau staffs are reduced somewhat by the draft and by calls to colleges and the military services, the amount of research being done in the fiscal year 1940-41 is decidedly less than in the year before. So far most of the vital research programs are being maintained but, except for those with direct bearing on defense problems, it is a question whether personnel and money for research will be so readily available as during the last three or four years. It would be unfortunate if too much restriction results, as the last few years marked a great upsurge in meteorology in this country in which leadership was in many lines wrested from the European citadels of learning that had dominated the field for many years past.

WAR AS A STIMULUS TO METEOROLOGICAL ADVANCE

On the other hand, wartime conditions have often provided the stimuli for some of the greatest advances in the meteorological arts. It was during the first World War that Norwegian meteorologists developed the technique of air mass and frontal analysis of weather charts which has revolutionized meteorological practice and theory in the last 20 years. The Norwegians in 1915-18 were cut off from weather reports from ocean ships and the nearby belligerent countries, which forced them to learn how to deduce more information and make forecasts solely from observations at Scandinavian stations. Earlier studies had pointed a way but undoubtedly the exigencies of the war speeded up a series of probably inevitable discoveries and improvements which have kept a whole generation of succeeding meteorologists profitably busy.

In the last few years, however, the possibilities of the air mass concept have been so thoroughly explored that the need for some additional and still more powerful working hypotheses of weather analysis has become more and more evident. A new start in this direction was provided by Prof. C. G. Rossby in 1937 with the introduction of isentropic analysis, which is now proving fruitful in forecasting work in this country as well as a tool for research. It is interesting to speculate what acceleration of development along this or some still newer line might be engendered in the course of the present urgency. Little can be guessed as yet because, on this side of the Atlantic, war has not yet cut off or prevented the normal procedure of the weather services, and the particular problems that might arise in case of our becoming a belligerent depend greatly upon the scene of action and other contingencies.

The Army and Navy have to consider the possibility that operations may be carried out in regions where few current weather reports can be had, and the usual methods of weather forecasting could not, therefore, be well applied. It is interesting to note that the war problems in meteorology usually have to be solved on the basis of less than normal peacetime information whereas in peacetime it is generally regarded that the solution to most problems can be attained chiefly by increasing the number and detail of observations. This does not mean that the peacetime improvements in the collection of weather reports, in analysis of weather charts, and in forecasting, do not contribute towards the solution of wartime difficulties. Quite the contrary, the knowledge gained in peacetime provides principles which facilitate the search for wartime "shortcuts." Looking ahead, the Navy Department already has been experimenting with methods of forecasting under the assumption that very few weather reports from over the oceans will be available.

The general war situation leads to official withholding of certain data and inventions regarded as of prime military or strategic value. In the belligerent countries this is naturally very restrictive, sometimes going to ludicrous extremes. Most of the foreign meteorological journals are still being published but a tendency to innocuous and purely academic contributions is obvious. Undoubtedly, many important "secret" developments are being pressed, and we know that in Germany the activity in meteorological work is unprecedentedly great. The organization of the German and Italian governmental weather services has been highly perfected for complex routine functions, but there is reason to believe that this extreme regimentation tends to throttle the opportunity for free experiment and criticism which leads to new ideas and improvements.

WAR SERVICE OF METEOROLOGISTS

The meteorologists serving the military services and strategic public needs during war have especially several types of problems to solve.

(1) To provide special local and general weather forecasts in connection with field operations of troops, chemical warfare air forces, and the Navy, often under the difficulty of having to rely on very limited or only local observations. Long range forecasts up to a week or month in advance are also much desired by the services; the Army and Navy are following closely the five-day forecasting methods introduced by the U. S. Weather Bureau in September, 1940, as well as other methods.

(2) To obtain the reports of upper winds and temperatures needed for ballistic corrections in artillery fire and bombing; great pressure is now being exerted to devise a practical system of radio-sounding for upper winds when it is cloudy or foggy and balloons can not be seen. This development is reputedly at hand practically but of course is a prime military secret.

(3) General weather service for the public similar to that of peacetime, but rendered more difficult by lack of international cooperation, fewer reports, depletion of staffs by military service, and the necessity to withhold certain data from the enemy.

At the present time, the weather service in the United States is not seriously hampered by the war; in fact, somewhat more foreign and ocean-weather reports are received now than a year ago. Canada furnishes data from its eastern provinces in confidential form only. Efforts to augment the exchange of reports in the Central and Southern American region by collaboration and assistance from the United States are under way. The new air and naval bases will be supplied with meteorological stations. In Alaska a great expansion is under way for the Army, Navy, and civil aviation; eight radiometeorograph stations were put in operation in 1940. The latter are of general public benefit as much of our weather "brews" in the Alaskan and north Canadian regions.

RESEARCH DEVELOPMENTS

As noted above, research was continuing to grow as before up until mid-1940, when the defense requirements began to restrict some of it. Published results of research represent mostly work started in 1939-40. Valuable contributions to a number of problems may be mentioned: on atmospheric radiation and absorption of radiation by water vapor, by Elsasser, Hand, F. A. Brooks, Ashburn, and Jacobs; on fog causes and forecasting, by George, Hutchinson and Fink, and Petterssen; on tropical cyclone causes and forecasting by Deppermann and Dunn; on tornadoes by Gaigerov and Lloyd; on climatic changes, by Kincer, Wheeler, and Matthes; on cycles in weather, by Sterne, Page, and Clayton; on isentropic analysis of upper air charts, by Namias, Spilhaus and Starr; on the theory and practice of making 5-day forecasts, by Rossbey, Namias, Allen, Fletcher, Haurwitz, and Willett; on the theory of the general circulation of the atmosphere, by Rossbey; on improvement in wording of public weather bulletins, by Emmons and Landsberg; on improved radiometeorographs (radiosondes), by Diamond, Hinman; on automatic (radio robot) weather stations, by Pear, Lange, Diamond and Hinman.

DEVELOPMENT OF RADIO USES

The number of daily radiometeorograph stations was unfortunately reduced somewhat in August, 1940, and only in December was the number again increased. Much improvement in the radiosonde instruments remains desirable, and the Bureau of Standards, Harvard University, and California Institute of Technology are working to that end. The price should also come down in order to permit wider use. Progress is being made on robot stations to give weather reports by radio from remote uninhabited places. However, bad weather conditions would probably put the present models out of commission, for problems of power supply and protection from icing, etc. remain to be solved.

WORK OF THE WEATHER BUREAU

The Weather Bureau augmented its Boston office to a district forecast center for better service to New England, as a result of complaints following the 1938 hurricane and other recent storms. Congress passed a special appropriation for this office. At Los Angeles a district forecast center was also set up by increasing and centralizing all the previously scattered Bureau activities and offices in that region. The inservice training program of the Bureau continued with classes at Washington and Chicago and a correspondence course. The Bureau was transferred in July to the Department of Commerce, but this does not seem to have had any of the dire effects predicted by some. Meanwhile the internal organization of the Bureau has been converted to a horizontal or functional structure, which is more in keeping with the nature of the services rendered and should lead to greater efficiency. The regular services of the Bureau are being maintained in 1940-41 as in 1939-40 though the effect of the defense program is to reduce support for some of them and augment that to others. Some of the general defense appropriations have been allocated to the Bureau for services to the Army and Navy, which will also benefit the public services of the Bureau.

The five-day forecasts which were first issued to the public in August, were the outcome of the study of long range forecasting supported by Bankhead-Jones Funds since 1936. The forecasts and basic charts for them are made at Massachusetts Institute of Technology and wired to Bureau district forecast centers where the officials may reissue the forecast or modify it as they wish. These forecasts attempt to give the average conditions for the 5-day period rather than the exact succession and times of changes within that period.

PUBLICATIONS

The growth of training in meteorology has stimulated publication of new textbooks. The fifth edition of the *Introduction to Air Mass Analysis* by Jerome Namias, (Amer. Meteorol. Soc.) appeared much enlarged. It has been a popular elementary booklet throughout the world. Prof. S. Petterssen's new *Weather Analysis and Forecasting* (McGraw-Hill) is by far the finest technical text on the subject and will have a very healthy effect on American meteorology.

EDUCATIONAL ACTIVITIES

Prof. J. Bjerknes, formerly of Norway and famous inventor of air mass analysis, was called to the University of California in September to head a new department of meteorology (at Los Angeles). At the University of Chicago, a new Institute of Meteorology was opened in September under the secretaryship of Dr. H. R. Byers. These schools are well staffed and training many students already, but they plan to foster much research and graduate study. It is healthy for the profession to have five large graduate schools in the country.

AMERICAN EXPLORATION

By Robert M. Brown

Professor, Rhode Island College of Education

POLAR EXPLORATION

Rear Admiral Richard E. Byrd, who sailed for the Antarctic in November, 1939, in command of the United States Government Expedition to the Antarctica, has reported a number of exploratory flights. Sailing on the *Bear* eastward from the Bay of Whales on Jan. 19, 1940, flights yielded a reconnaissance and photographs of 300 miles of unexplored coast and the discovery of unknown mountain peaks in the vicinity of Marie Byrd Land. These flights led to the first realization that Sulzberger Bay was larger than previously charted and in effect an Antarctic Sea, and verified the presence of a large bay a few miles east of Cape Colbeck.

During February, the *Bear* sailed westward to Drygalski Peninsula and moored to shelf ice to permit landing of instruments for observations of the South Magnetic Pole. The present position of the Pole was found to be somewhat in agreement with the position calculated by Mawson but considerably west of the sites fixed by other explorers. The *Bear* then proceeded to the east of Ross Bay as far as 108 degrees west longitude where additional flights were carried out by Byrd, photographing and sketching the coast line of Antarctica and the adjacent land topography. Finally reaching a position about 40 miles southeast of the tip of Peter I Island in longitude 90 degrees west the party returned to the United States, and left on their return trip to the Bay of Whales during October.

Meanwhile the land party completed the unloading of the *North Star* late in January. Under the command of Dr. Paul A. Siple, a base was established at the Bay of Whales about four miles from Little America. From this point observation and mapping flights were made during February, and a 1,000-mile land trip eastward was undertaken. The *North Star* left at once for Valparaiso.

ALASKA

The American Museum of Natural History, New York, had three parties in the field in Alaska during 1940. Theodore A. McGraw, accompanied by T. Donald Carter, assistant curator of mammals, led an expedition in the Wrangel Mountains and collected mammals of the region ranging from mice to grizzly bears. Richard K. Mellon, with Robert H. Rockwell, collected material for the new Osborn Caribou group. Dr. Froelich G. Rainey, under a joint project of the Department of Anthropology of the Museum and the University of Alaska, excavated a large village site near Point Hope about 100 miles north of the Arctic Circle. The site appears to be pre-Eskimo and, if this proves true, it will be the first remains of pre-Eskimo culture found in Alaska.

The Academy of Natural Sciences of Philadelphia received from Alaska five specimens, all rams, of Dall's sheep for a new habitat group in North American Hall. R. R. M. Carpenter, a trustee of the Academy, contributed the expense of the expedition and led the expedition in this search for the northernmost of the mountain sheep of North America.

MEXICO AND CENTRAL AMERICA

Bernard F. Chapman and Raymond DeLucia were in Sonora, Mexico, during October and November making color sketches and collecting accessories for the Jaguar group for the Hall of North American Mammals, American Museum of Natural History. Cornelius V. Whitney, the donor of the group, at whose ranch the expedition was based, secured the big male jaguar, the main feature of the group.

Dr. Grace F. Ramsey, associate curator of the American Museum of Natural History, with Herman Sievers, Mrs. Sievers, and Miss Ethel Fisher, on a 10,000-mile automobile journey through Mexico, conducted a study of the lives and work of Indian craftsmen. Representative collections of the native crafts of the Mexicans were obtained which will be circulated from the Department of Education among schools and other institutions.

Paul C. Standley, curator of the herbarium of the Field Museum of Natural History, Chicago, left in September for a seven months botanical expedition to survey the flora of Guatemala. The expedition will continue explorations conducted by him during 1939 and early 1940 and by Julian A. Steyermark in the early part of 1940. The ultimate purpose of the work of all three expeditions is the preparation of a descriptive and illustrated account of the plants of Guatemala.

Melvin Taylor, Jr. and E. Wyllys Andrews, co-sponsors and conductors of an expedition to Yucatan and Campeche, Mexico, returned in April with 731 specimens of exotic birds and reptiles for the Field Museum of Natural History.

M. A. Carikker of the United States National Museum continued the collecting work in the state of Vera Cruz, Mexico, started earlier in the year by Dr. Alexander Wetmore of the Smithsonian Institution, and shipped about 1,000 specimens of birds to be housed in the Smithsonian Institution.

CARIBBEAN AREA

Leon Mandel sponsored and led an expedition of the Field Museum of Natural History, Chicago, to out-of-way cays, islands, and rocks in the Caribbean. Rudyerd Boulton, Jr., curator of birds, and D. Dwight Davis, assistant curator of anatomy, accompanied the expedition.

The most isolated island visited was Swan Island where specimens of Nelson's warbler and a species of palm lizard, both hermit-like creatures were obtained. On Mujeres, Cancun, and Contoy Islands were collected pelicans, cormorants, frigate and other birds: on the Bay Islands the expedition obtained snakes and lizards: and off Glover's Reef, collections of fish. The main objective of the expedition was to study the wild life of these little known places, and to obtain a representation of the faunas of circumscribed ranges for comparison with other faunas which usually range for thousands of miles.

Dr. William Beebe led his fortieth expedition for the New York Zoological Society to the society's laboratory at New Nonsuch, Bermuda. Among the staff were Miss Jocelyn Crane, Graeme-Kelley, and Bronson Hartley. The life histories of fish and crabs were studied.

SOUTH AMERICA

Dr. Wilfred H. Osborn, chief curator of the Department of Zoology of the Field Museum of Natural History and leader of the Magellanic Expedition, continued the operations begun in 1939 until June 1940. Zoological collections were made in the Lake Titicaca region of southern Peru and in an area high in the Bolivian Andes. Specimens of rats and mice were collected above the 15,000-level and many others which represented evolutionary adaptations to high-altitude life. The expedition continued its work in various parts of Chile, along the shores of the Straits of Magellan, on the island of Tierra del Fuego at the southernmost tip of South America, and in Argentina. The Tierra del Fuego region had not been zoologically explored since Darwin collected there 106 years ago. The personnel of the expedition included Karl P. Schmidt, curator of amphibians, Colin C. Sanborn, curator of mammals, and John Schmidt.

Michael Lerner conducted the Lerner-Peru-Chile Expedition during April, May, and June which, together with the previous studies, will furnish valuable data for the world-wide survey by the American Museum of Natural History into the mysterious migrations of swordfish and marlins. From 1936 to 1938, Lerner expeditions studied the Atlantic coast swordfish off Louisberg, Cape Breton, and marlin in the waters off the island of Bimini. In 1939 the Pacific runs of these fish were investigated off New Zealand and Australia. The object of the 1940 expedition off South America was to determine if the swordfish and marlin there are the same as those found in west Pacific waters. Miss Francesca LaMonte, associate curator of fishes, was the scientific director of the expedition and made detailed studies of size, coloration, internal organs and parasites of all marlin and swordfish caught by Mr. and Mrs. Lerner. Commercial fishermen are keenly interested in the survey as so little is known of the conditions that govern swordfish migrations and therefore the commercial supply is affected. Other members of the expedition were Captains Douglas Osborn and William Hatch, David D. Duncan, Irving Hartley, and Vibo Valenzio.

AFRICA

Dr. H. H. Tate, assistant curator of mammals at the American Museum of Natural History, returned in September after 18 months of exploration and collecting on the Campbell-West African Expedition. The main purpose was to collect chimpanzees and mandrills, as well as foliage and other accessories, for two new African Hall groups. Dr. Tate was accompanied on part of the expedition by Robert Kane, artist in the Department of Preparation. Dr. Tate arrived at Tabou on the French Ivory Coast in April, 1939, and identified the chimpanzee habitat in the western part of the Ivory Coast, near the Liberian border. A collection was made in this region before the winter rains. The French Cameroons were next visited to obtain the mandrill apes that live in the dense forests. Because of the spoilage in transit of the first specimens of chimpanzees, it was necessary to obtain a second collection of these animals.

Dr. William M. Mann, director of the National Zoological Park and leader of the Smithsonian-Firestone expedition to the tropical jungles of Liberia, sailed from New York in February, 1940. He was accompanied by Mrs. Mann, his collaborator on previous expeditions in the tropics. Ralph B. Morris and Roy Jenner, animal keepers at the National Zoo. The expedition headquarters were at the Harvey Firestone plantation near Monrovia. The party returned in August with about 50 crates of live animals including two pigmy hippopotamuses, several chevrotain (miniature deer), and duiker (rabbit-sized antelopes), a number of monkey-eating eagles, and a considerable miscellany of small mammals, birds, and reptiles. The hoofed animals were kept in quarantine at Norfolk, Va., where the party landed until danger that they might introduce hoof and mouth disease was past. All birds of the parrot family were also kept under strict observation until they were proven free of parrot fever.

PACIFIC OCEAN

The Second Fahnestock Expedition left New York early in the year on the *Director II* for a 40,000-mile cruise among the South Sea Islands which it is expected will take two years. The expedition will collect botanical, zoological, and geological specimens, and make recordings of native ceremonials among the peoples of the islands. The ship is in charge of Sheridan Fahnestock, and Bruce Fahnestock is in charge of the scientific work. They are accompanied by their mother, Mrs. Bruce Fahnestock, and a group of scientists from the American Museum of Natural History. The expedition carries a plane which can be easily assembled or dismantled and which will be used for scouting and mapping and for carrying supplies to parties ashore at inland bases. The plane is equipped with a radio for communication with the ship.

George E. Peterson, artist and preparator at the Museum, left New York late in the spring to join the Fahnestock South Sea Expedition in Suva, Fiji. Mr. Peterson will collect all accessories, such as botanical specimens, soil, rocks, and shells, for four new groups in the Whitney Memorial Hall of Birds. He will also make color photographs and watercolor sketches for the background paintings of these groups, which include sites from Fiji, Solomon Islands, New Caledonia, and the Great Barrier Reef of Australia.

George Vanderbilt, a trustee of the Academy of Natural Sciences of Philadelphia, collected birds on an uninhabited island of the Pacific, spending some time there with his wife and one boy to help with the field and camp work.

Lindsay Macmillan of the American Museum of Natural History is continuing his bird collecting for the Whitney South-Sea Expedition, chiefly in Australia.

ASIA

Dr. Harold E. Vokes, assistant curator of Invertebrate Palaeontology of the American Museum of Natural History spent the summer in Syria, primarily to study the stratigraphy of the Lebanon Mountains. He also made a collection of invertebrate fossils which he placed on deposit in the University of Beirut until the end of the war.

Dr. Joseph F. Rock has sent to the Smithsonian Institution from Indo-China a large collection of birds which includes three specimens of the giant ibis, marabou storks, herons and other water birds. Among the smaller specimens are representatives of several species unknown until they were found by a Swedish expedition in the same area a few years ago. The collection contains nearly 800 specimens. Dr. Rock has worked many years in western China but when the war made conditions too difficult for further operations he shifted his base to Indo-China.

OCEANOGRAPHY

By Paul C. Whitney

United States Coast and Geodetic Survey

ICE OBSERVATIONS AND PATROL SERVICE

During 1940, because of the almost total absence of ice in the vicinity of the Grand Banks of Newfoundland, only one ice observation cruise was made by the U. S. Coast Guard in connection with the International Service of Ice Observation and Ice Patrol in the North Atlantic Ocean. However, in anticipation of the possible southward drift of menacing ice, the Coast Guard repeatedly surveyed the Grand Banks region during April, May, and June. During this period four surveys were made. As the third survey was repeated immediately after its completion, five dynamic topographic charts were constructed. These charts were referred to the 1000-decibar surface although at most of the 235 oceanographic stations occupied the temperature and salinity measurements extended to a depth of about 1,400 meters where the depth of water permitted.

Between June 25 and June 29, 21 oceanographic stations were occupied from the surface to as near bottom as was practicable on a short post-season cruise in the Labrador Sea between South Wolf Island, Labrador, and Cape Farewell, Greenland. These stations were disposed in the form of a single section crossing the Labrador Current, the central Labrador Sea, and a part of the West Greenland Current. Unusually extensive sea ice off the Greenland coast prevented the complete crossing of the West Greenland Current. Incidental data collected, both during the season and post-season cruises consisted of barograms and sea-water surface thermograms.

Between Sept. 14 and 17 there were occupied 13 oceanographic stations on the western side of Baffin Bay. These stations were disposed in the form of two sections approximately normal to the trend of the Baffinland coast and reaching from coastal waters to positions of 73° 10′ N., 68° 30′ W., and 70° 41′ N., 64° 23′ W. At each of these 13 stations serial observations of temperature and salinity extended from the surface to as near bottom as was practicable under the circumstances, the greatest depth of observation being 1861 meters. The results of the work of the 1940 season will be published in U. S. Coast Guard *Bulletin No. 30.*

TIDE OBSERVATIONS AND HYDROGRAPHIC SURVEYS

From Maine to Florida 25 primary tide stations were maintained in operation by the Coast and Geodetic Survey for the purpose of hydrographic control, tidal research, and determination of changes in sea level. An area of approximately 6,100 square miles of hydrography was accomplished in the Gulf of Maine by about 15,000 miles of sounding lines, and water temperatures and salinities were observed at over 100 separate stations in this area. All but the inshore area of Nantucket Shoals was surveyed by the running of 8,000 miles of sounding lines covering an area of approximately 700 square miles. Detailed hydrographic and wire drag surveys were made in the outer portions and approaches to Boston Harbor, and hydrographic surveys were continued in the upper portion of Chesapeake Bay and started in the James River. A hydrographic survey off the coasts of North Carolina and South Carolina was started in the winter of 1939-40 and was resumed in the fall. This project will be extended offshore to include the 1000-fathom curve.

The Hydrographic Office of the United States Navy completed the hydrographic survey of the north coast of Venezuela and off-lying islands from the mouth of the Unare River to Cape San Roman, covering a total area of 23,000 nautical square miles.

The Woods Hole Oceanographic Institution during the early part of the winter of 1940 secured additional observations on the Montauk Point-Bermuda section of the Atlantic for a study of long-period variations in the transport of the Gulf Stream. The available data were then analyzed and a preliminary report published. A network of stations has been repeatedly occupied on Georges Bank. While the main objective of these surveys was a study of the factors influencing the survival of young haddock, the extensive temperature and salinity observations obtained will no doubt yield a better understanding of the currents over the fishing banks. During the summer months a good deal of time was devoted to the study of various geological problems in relation to the several canyons off the Delaware and New Jersey coasts. Samples were dredged from the walls of several of these canyons. Tests were also made of deep sea seismic equipment.

The outstanding instrumental development during the year by the Woods Hole Oceanographic Institution was the simple, inexpensive submarine camera devised by Dr. Maurice Ewing. Extremely clear photographs of the bottom were obtained in depths as great as 300 fathoms. Included in these photographs are a small compass and a current indicator so that it is practical to study the current directions within a few inches of the bottom.

HYDROGRAPHIC SURVEYS IN THE PACIFIC

Hydrographic surveys off Cape Mendocino in the region of the seaward extension of the San Andreas fault line were resumed in the fall by the Coast and Geodetic Survey. Detailed revision surveys of Grays Harbor, Washington, and of the tributaries of northern Puget Sound were begun the previous winter, and work was resumed this fall. The original hydrographic survey of Glacier Bay, Alaska, was continued, and water areas heretofore covered by glaciers are now being sounded. Extensive offshore surveys of the Gulf of Alaska in the vicinity of Lituya Bay were begun early in the spring. An area of approximately 2,800 square miles was covered by sounding lines. Detailed surveys were continued in the vicinity of the Sanak Islands along the south coast of the Alaska Peninsula. The extensive surveys by the Coast and Geodetic Survey along the Aleutian Islands were continued westward to the vicinity of Amukta Island, and an area of about 5,000 square miles of hydrography was covered. Detailed surveys were continued along the north coast of Unimak Island and offshore into Bristol Bay, covering an area of approximately 2,300 square miles.

The Hydrographic Office of the U. S. Navy carried out survey operations in the Gulf of Guayaquil, inclusive of the Guayas River.

Over 300,000 sonic soundings, mostly over previously unsounded areas, have been plotted and correlated by the Hydrographic Office and are being incorporated on affected charts as opportunity permits.

The project for evaluating ocean-current and sea-surface temperatures for all oceans of the world, covering a 30-year period, is rapidly approaching completion.

The Scripps Institution of Oceanography continued research work off the coast of Southern California. Numerous stations were occupied at which temperatures were observed at various depths between the surface and 600 meters. Water samples were collected for determination of salinity, oxygen content, and phosphate, and net hauls for microscopic organisms were made. Through a grant from the Geological Society of America, the *E. W. Scripps* of that Institution made a study of parts of the Gulf of California. Four selected areas were examined for bottom topography and types and distribution of sediments. Hydrographic observations and current measurements were made for facilitating the interpretation of the new findings and the results obtained in 1939. In the laboratories at La Jolla, studies of the data from the ocean, theoretical studies in physical oceanography, and experimental work in marine biology following the same lines as in previous years were conducted. Many publications dealing with the work of this Institution during the year were published.

During the summer the Oceanographic Laboratories of the University of Washington continued studies of the offshore waters of the coast of Washington and detailed investigations of the waters of Puget Sound. The results of these studies were published by the University of Washington.

TIDE OBSERVATIONS IN THE PACIFIC

Twelve primary tide stations were maintained in continuous operation by the Coast and Geodetic Survey from California to Alaska and one in Honolulu. In addition to furnishing the necessary data for hydrographic surveys, the results of these observations are of basic importance in tidal research and in the determination of relative changes in elevation of land and sea.

GULF OF MEXICO

Extensive offshore surveys were continued by the Coast and Geodetic Survey to include the 1000-fathom curve and in some areas to deeper water were carried on southward of the Mississippi River Delta, the surveys covering an area of approximately 28,000 square miles with 18,000 miles of sounding lines. Five primary tide stations were in operation.

OCEAN BOTTOM SURVEYS

The comprehensive offshore surveys both on the Atlantic and Pacific coasts of the United States continued to be of great interest to geologists. The submerged patterns found stimulated new thought directly influencing previous concepts of geology relating to ocean areas about which so little has been known heretofore. The recent researches and interpretations of the soundings of the continental shelf and slope have been compiled and published by the Geological Society of America in cooperation with the Coast and Geodetic Survey. Recent surveys in the Gulf of Alaska found several large submarine mountain peaks, and surveys of Nantucket Shoals show the existence of many bottom sand waves of interesting forms.

AMERICAN GEOPHYSICAL UNION

The annual meeting of the American Geophysical Union was held in Washington, D.C. April 24-27, 1940. The papers given for the Section of Oceanography presented a review of activities of the year for the various Federal and educational institutions engaged in oceanographic work. In addition, there were papers as follows: Floor of the North Pacific Ocean; preliminary results of measurements of temperature and salinity variations in the Gulf Stream; The Munich-Peterson formula for the so-called "coastal transportation force;" and on the necessity of a new approach to the study of the circulation on the continental shelf. These papers appear in full in Part II of the *Transactions* of the American Geophysical Union, published by the National Research Council, Washington, D.C.

INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS

The Section of Physical Oceanography of the International Union of Geodesy and Geophysics has published the papers presented at the Seventh Triennial General Assembly held in Washington in 1939. Information relative to these papers can be obtained by addressing Dr. J. Proudman, general secretary, Association d'Oceanographic Physique, The University, Liverpool, 3, England.

PERIODICAL PUBLICATIONS

American Mineralogist
U.S. Geological Survey, Washington, D.C.

Economic Geography
Clark University, Worcester, Mass.

Economic Geology
University of Illinois, Urbana, Ill.

Geographical Review
American Geographical Society, Broadway and 156th Street, New York City.

Journal of Geography
3333 Elston Ave., Chicago.

Journal of Geology
5750 Ellis Ave., Chicago.

Journal of Terrestrial Magnetism and Atmospheric Electricity
Johns Hopkins Press, Baltimore, Md.

Mining and Metallurgy
29 West 39th Street, New York City.

National Geographic Magazine
National Geographic Society, Washington, D.C.

Nature Magazine
295 Madison Ave., New York City.

Petroleum World
412 West Sixth Street, Los Angeles, Calif.

Transactions of the American Geophysical Union
5241 Broad Branch Road, N.W., Washington, D.C.

Travel
116 East 16th Street, New York City.

Travel America Guide
222 East 42nd Street, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Assn. of Petroleum Geologists, Box 1852, Tulsa, Okla.

American Geographical Society, Broadway at 156th St., New York City.

American Meteorological Society, Blue Hill Observatory, Milton, Mass.

Appalachian Mountain Club, 5 Joy St., Boston, Mass.

Association of American Geographers, University of Pennsylvania, Philadelphia, Pa.

Explorer's Club, 10 W. 72nd St., New York City.

Geological Society of America, 419 W. 117th St., New York City.

National Geographic Society, 1146 16th St., Washington, D.C.

Oceanographic Laboratories, University of Washington, Seattle.

Scripps Institution of Oceanography, La Jolla, Calif.

Seismological Society of America, University of California, Berkeley, Calif.

Woods Hole Oceanographic Institute, Woods Hole, Mass.

DIVISION XXI

CHEMISTRY AND PHYSICS

PHYSICAL CHEMISTRY

By Hugh S. Taylor
Professor, Princeton University

GENERAL

The war in Europe has materially decreased the amount of work published in the physical chemistry field. The major contributions at the moment are American in origin with minor communications from belligerent countries representing in the main a back-log of work completed prior to the war.

THE MISSING ELEMENTS IN THE PERIODIC TABLE

Through the contributions of workers with induced radioactivity the periodic system of elements has been completed and the properties of element 93 defined. A few years ago four elements were missing, No. 43 (eka-manganese), No. 61 (a rare earth element, Illinium of B. S. Hopkins), No. 85 (eka-iodine) and No. 87 (eka-caesium). Element 87 has been found by Mlle. Perey as a rare branching product in the natural radioactive actinium family (*Comptes Rendus*, 208, 97 [1939]). Perrier and Segré found No. 43 among the products of neutron and deutron bombardment of molybdenum (*Nature* 143, 460 [1939]). Most of its characteristics resemble rhenium very closely, and Noddack's method of enriching rhenium should also have concentrated No. 43, to which Noddack gave the name Masurium. The rare earth element 61 has probably been produced by deutron bombardment of neodymium (Pool and Quill, *Phys. Rev.*, 53, 437 [1938]) but no chemical studies are available.

In 1940 the final missing element, No. 85, was prepared by alpha-particle bombardment of bismuth (Corson, Mackenzie and Segré, *Phys. Rev.*, 57, 459; 58, 672 [1940]). In many of its properties No. 87 is much more metallic than iodine but it can be separated from bismuth by volatilisation and is accumulated, like iodine, by the thyroid gland. The element is radioactive with a half-life of 7.5 hours and emits two ranges of alpha-particles, of ranges 6.5 cm. and 4.5 cm. The former arises from the formation of Actinium-lead from Actinium-C′ which arises from No. 85 by K-electron capture. The lower range of alpha-emission presumably produces Bismuth (207) which should decay to Lead (207). Element No. 93 is the lone member of the "trans-uranium" series of elements. Its existence is now proved. It arises from neutron bombardment of uranium, nuclear fission being of course the major outcome of such action.

INDUCED RADIOACTIVITY IN CHEMICAL SCIENCE

The year's work has revealed the broad scope of application of induced radioactivity and of stable isotopes in chemical science. For example, the chemist now has at his disposal three radioactive carbon isotopes in addition to the stable heavy isotope, C^{13}. Carbon 10 has a half life of 8.8 seconds (Barkas *et al.*, *Phys. Rev.*, 57, 562 [1940]), Carbon 11 one of 21 minutes and Carbon 14 one of more than 1,000 years. The two latter are being used as tracer elements to explore, for example, the mechanism of photosynthesis in plants, of micro-organic conversion of carbon dioxide in presence of glycerine to propionic acid, of carbon dioxide to methane and to acetic acid in presence of uric acid. (Carson and Ruben, *Proc. Nat. Acad. Sci.*, 26, 422 [1940]; Barker, Ruben and Kamen, *ibid.*, 26, 426 [1940]; *ibid.*, Aug. [1940]; *Science* 90, 570 (1939); *J. Am. Chem. Soc.*, 61, 661 [1939]).

The utility of the stable isotope can be illustrated in the case of heavy nitrogen which Rittenberg has used to measure the quantity of a given amino-acid in the hydrolytic products from protein. This involves the addition of a small amount of the amino-acid in question containing a known proportion of heavy nitrogen to the hydrolysate, isolating a small amount of the acid. Determination of the heavy nitrogen content of the isolated sample permits a calculation with considerable exactness of the content of the amino acid in question in the hydrolysate.

Alvarez and Cornoy (*Phys. Rev.*, 58, 197 [1940]) have investigated at least three different methods of producing tritium, the third hydrogen isotope. It is radioactive with a half-life of 30 years breaking down with emission of a 15000 volt electron or beta-particle to form helium 3. The tritium in itself is an interesting atom since its nucleus is composed of one proton and two neutrons. Its existence makes possible the studies, already familiar since the discovery of deuterium, of mechanism in reactions involving hydrogen but utilising the measurements of radioactive change for following the reaction processes. Both Carbon 14 (Ruben and Kamen, *Phys. Rev.*, 57, 549; 58, 194 [1940]) and Hydrogen 3 can be obtained as by-products of cyclotron operation, the former by neutron bombardment of the nitrogen in ammonium salts, the latter by deuteron bombardment of beryllium. They will, therefore, be available in larger quantities than isotopes which require actually production at targets with the main cyclotron beam.

RADIOACTIVE IONS AS TRACERS

Radioactive ions of metallic and non-metallic elements are also useful as tracers in animal metabolism, plant physiology and in the study of exchange reactions in solutions. Radioactive iron (59) reveals an immeasurably rapid reaction between ferrous and ferric ions, but none between ferro- and ferri-cyanide. The rôle of iron in red blood cells and their behavior has been similarly studied. Mercuric and mercurous ions rapidly exchange as do manganate and permanganate ions. Measurable rates of reaction between radioactive chlorine, bromine and iodine and their ions, and the oxyacids of these halogens have been studied. In analytical chemistry they have been used for solubility determinations, studies of adsorption and co-precipitation at low concentrations, and to determine the errors inherent in a particular analytical method. Physical-chemical science is evidently provided with a wonderful range of "new lamps for old."

RESTRICTED ROTATION ABOUT SINGLE BONDS

In 1938 attention was drawn in this report to a new development in theoretical physical chemistry of considerable importance in the calculation of equilibrium, especially valuable in reactions, such as those in organic chemistry, where direct measurement of equilibrium was not possible. It was there pointed out that the single bond, say between carbon and carbon, was ordinarily assumed by the organic chemist to be "free" as regards the mutual rotation of groups connected by such a bond. The organic chemist based his conclusion on the absence, in experimental preparations, of different forms of isomers of a given substance which should exist were the single bond not free as to rotation.

It was shown, however, some years ago that a detailed study of the equilibrium in such a system as hydrogen, ethylene, ethane required that the rotation of the two singly bound methyl (CH_3) groups in ethane, C_2H_6, must be subject to a definite, if small, restricting potential. More recent work has led to the conclusion that a restriction to rotation amounting to 2,860 calories will suffice to bring calculation and experiment concerning equilibrium into agreement. While this is insignificant to the organic chemist in most of his work it is of great importance in equilibrium calculations in complex molecules which contain many such single bonds. Succeeding these preliminary observations there has followed a large amount of experimental search and theoretical calculation of the magnitude of such restrictions of rotation in other compounds and many papers this year show evidence of such efforts.

RESTRICTING POTENTIALS INVOLVING METHYL GROUPS

It has been shown, for example, that when the two methyl groups are separated by two triply bonded carbon atoms as in dimethyl acetylene, $CH_3.C\equiv C.CH_3$, which is a linear molecule, there is a negligible restriction of rotation of the two methyl groups (Crawford and Rice, *J. Chem. Phys.*, 7, 437 [1939]; Osborne, Garner and Yost, *ibid.*, 8, 131 [1940]). Two methyl groups separated by an oxygen atom in dimethyl ether, $CH_3.O.CH_3$, indicate a restricting potential of 2,500 calories (Kistiakowsky and Rice, *ibid.*, 8, 619 [1940]); separated by a sulfur atom in dimethyl sulfide a potential barrier of 2,000 calories is sufficient (Osborne, Doescher and Yost, *ibid.*, 8, 506 [1940]). Kistiakowsky and Rice (*loc. cit.*) find, in addition, restricting potentials in various molecules, for example, in propylene, 2,100 cal. and propane, 3,200 cal.

The Danish investigators, Langseth and his colleagues, using the technique of Raman spectra of the liquids, reach the conclusion that the configuration of cyclohexane due to hindered rotation is planar as to the six carbon atoms in the ring, while tetrachlorethane, $C_2H_2Cl_4$, is a mixture of two isomers, a cis-form and a form between cis- and trans-, of which the cis-isomer is the more stable. This could only arise from hindered rotation of the C—C single bond (Langseth et al., *ibid.*, 8, 403, 410, 415, 430 [1940]). They find also hindered rotation in the molecule $CH_2D.CH_2Br$. Their conclusions, however, are vigorously contested by Shomaker and Stevenson (*ibid.*, 8, 637 [1940]) who point out that electron diffraction photographs of the vapor molecules are in complete disagreement with the configurations proposed by Langseth and Bernstein, and that in the case of tetrachlorethane the data indicate the presence of equimolar amounts of the two "staggered" isomers.

RESTRICTING POTENTIALS IN LARGER MOLECULES

Aston, Messerly, Kennedy and Schumann (*J. Am. Chem. Soc.*, 62, 1917, 2059 [1940]) have examined butane and isobutane. In the latter, potentials of 3,870 cal. are needed for the methyl groups and much higher potentials for the ethyl groups in butane. Messerly and Kennedy (*J. Am. Chem. Soc.*, 62, 2988 [1940]) have examined n-pentane and show that this molecule requires a restricting potential of the order of 16,000 cal. per mole between ethyl and propyl groups to account for the difference between statistical calculations on the basis of free rotation and the entropy from thermal data. Pitzer (*J. Am. Chem. Soc.*, 62, 1224 [1940]; *J. Chem. Phys.*, 8, 711 [1940]) is extending these experimental studies and statistical calculations to longer chain hydrocarbons and has significantly studied n-heptane and 2-2-4 trimethyl pentane of especial interest since the former is a poor anti-knock fuel and the latter is "iso-octane," the standard 100-octane fuel for anti-knock ratings. He finds that restricted internal rotations of the same order of magnitude as have been found for simpler hydrocarbons are necessary to correlate the statistical calculations with the experimental data. A symposium on the fundamental chemical thermodynamics of hydrocarbons and their derivatives, which includes a full discussion of the thermochemical data, heat capacities, free energies and statistical methods in this field, was published in August (*Chem. Reviews*, 27, 1-85 [1940]).

REACTIVITY OF CRYSTAL FACES

Considerable attention is being given to the properties of individual faces of crystals as the seats of chemical reactivity and marked differences in such activities are being found. Beeck, Wheeler and Smith (*Phys. Rev.*, 55, 601 [1939]; *Proc. Roy. Soc. Abs.*, 176, S57 [1940]) have prepared metal films of high and reproducible catalytic activity by condensing metal vapors on glass in an inert gas atmosphere. By electron diffraction studies they have shown that with nickel and iron the least densely packed planes of the crystal were developed parallel to the glass backing and that such oriented nickel crystals had five times the activity per gram of randomly oriented crystals. Gwathmey and Benton (*J. Chem. Phys.*, 8, 431, 569 [1940]) have examined single crystals of copper and shown that oxidation patterns develop, pointing to a reactivity varying with the crystal plane. The work of Beeck and his colleagues is parallelled by other electron diffraction studies (Thirsk and Whitmore, *Trans. Faraday Soc.*, 34, 565 [1940]) in which it is shown that particular faces of alumina take up nickel oxide vapors preferentially at surfaces where the lattice dimensions of the two differ least and where the two lattices may be bonded by a compound formation $Ni(AlO_2)_2$ between the two. Twigg and Rideal (*ibid.*, 34, 533 [1940]) examined the geometry of the various planes of nickel and the dimensions of absorbed ethylene and methyl ethylene molecules in an effort to correlate the geometries with the reactivities observed. Langmuir (*J. Chem. Soc.*, p. 511, [1940]) has re-examined all the accumulated data on surface adsorption and re-interpreted them on the basis of availability of "sites."

ELECTRON EMISSION FROM CRYSTAL FACES

A series of researches in the physical field parallel these investigations on adsorption. Recent studies (Nichols, *Phys. Rev.*, 57, 297 [1940]) have shown that the energy required to release electrons from tungsten surfaces varies with the crystal face and that the electron emission can be poisoned on different faces by different poisoning agents such as oxygen, caesium, and barium. Benjamin and Jenkins (*Proc. Roy. Soc.*, 176, 262 [1940]) suggest that the development of faces as revealed by electronic emission is due to surface mobility of metal atoms above 370° Absolute for nickel, 770° for molybdenum, and 1170° for tungsten.

PROPERTIES OF LARGE MOLECULES

The intensive industrial development of synthetic plastics, rubbers, and fibres has stimulated practical and theoretical studies of the properties of large polymeric molecules. It is known that increasing molecular size gives rise to solutions of increasingly high viscosity and this property has been utilized for measuring average molecular size. Recently Flory has shown (*J. Am. Chem. Soc.*, 62, 1057 [1940]) that, in a series of polymers of the same condensation type, while the viscosity varies enormously, the change of viscosity with temperature is constant, independent of average molecular weight. Esters having average molecular weights in the range 200 to 10,000 show a linear relation between the logarithm of the viscosity and the square root of the weight average chain length throughout this range. Accurate data of this type are proving especially fruitful in the theoretical development of the subject as indicated by the recent paper of Kauzmann and Eyring (*J. Am. Chem. Soc.*, 62, [1940]). The importance of this field is revealed also by the recent book by Prof. H. Mark, *The Physical Chemistry of High Polymeric Systems* (Interscience Publishers, Inc., New York, 1940). Technique in this field has been facilitated by the published description of a simple ultracentrifuge devised by McBain and Lewis (*Trans. Faraday Soc.*, 36, 381 [1940]).

PHYSICS

By Thomas H. Osgood
Professor, University of Toledo

FISSION OF URANIUM

Hahn and Strassman's discovery of the splitting of uranium atoms into two fragments of roughly equal masses by neutron bombardment was news as sensational as scientific news is ever likely to be. Physicists were therefore well prepared in 1940 for the announcement (R. O. Haxby *et al.*, *Phys. Rev.* 58, 92) from the Westinghouse Research Laboratories that uranium and thorium atoms behaved in a similar fashion under the influence of energetic gamma rays. Modern experiments in the transmutation of atoms are far from simple; they utilize as tools many processes which are themselves discoveries of recent date. In the particular case of the photo-fission of uranium and thorium, the primary requirement was an intense beam of gamma rays of energies of the order of 5 Mev. This was obtained by bombarding fluorides with protons from the Westinghouse electrostatic generator. Fission of a heavy atom is not, however, a frequent happening. The chance that one quantum of gamma rays per cm^2 will cause the fission of one atom of uranium is only 2×10^{-26}. In comparable circumstances, the cross section of the uranium atom for fission by slow neutrons is about 3×10^{-24} cm^2.

From the other side of the Atlantic there have come reports of the fission of uranium and thorium atoms by deuteron bombardment. (Krishnan and Banks, *Nature,* 145, 860). At the moment of writing, therefore, there are three methods of causing the fission of uranium and thorium: (a) by neutrons, (b) by gamma rays, (c) by deuterons. Since (b) and (c) are very recent discoveries, there has hardly been time to investigate the energy relations of these processes, but some progress has been made in the detailed study of the neutron-uranium reaction. It is now clear, for example, that U^{235} is responsible for most of the slow neutron fission observed in unseparated uranium. On the other hand, under fast neutron bombardment, U^{238} appears to play the dominant rôle.

There is good evidence (Kanner and Barschall, *Phys. Rev.* 57, 372) that the most probable fragments of U^{239} have masses 96 and 143, though rather wide variations in these numbers occur. One of the fragments always belongs to a lightweight group of elements, of atomic number 35-43, and the other to a heavyweight group, 51-57. No fission fragments have been recorded which fall in the separating gap of seven elements.

A detailed study of primary fission fragments has come from Bohr's laboratory in Copenhagen (*Phys. Rev.* 58, 654). The flying fragments were studied in a cloud chamber, and in many respects their behavior differs from that of the familiar lighter particles, alphas and protons. They make far more heavy spur tracks and suffer many more small deflections, which makes it difficult to estimate their masses, or even to distinguish the light from the heavy fragments. Indeed, theory shows that the range should depend, to a close approximation, only on the initial momentum, and not on the initial energy. The very manner in which the two fragments are formed makes their momenta equal, and hence their ranges in the cloud chamber are the same. The information which is being gathered concerning the fission fragments is of fundamental importance in theories of nucleus-building. The reader who is interested in this and in the stability of nuclei should consult a recent paper by Turner (*Phys. Rev.* 57, 590).

ARTIFICIAL RADIOACTIVITY

More than a year ago several pretenders to the title of transuranic elements were comfortably disposed of and relegated to less exalted positions in the periodic table. They were the fission fragments of uranium and thorium. Now there are other claimants whose credentials, as far as they go, appear to be above suspicion. Among the radioactive fractions from uranium activated by neutrons, Nishina in Japan and Macmillan in this country (*Phys. Rev.* 58, 178) have found a new U^{237} which seems to decay to an element of atomic number 93, but the radiations of this transuranic element itself have not been detected. The period may be so long that the emissions are too feeble to be detected with certainty with present-day techniques. Added to this, there is the problem of the identification of the 2.3-day substance which grows from 23-minute uranium. Macmillan and Abelsen (*Phys. Rev.* 57, 1185) have suggested that it may be the second of a new group of rare earths which starts at uranium.

Experiments a few years ago concerning the angular distribution of light disintegration particles created in a few well-established reactions with light elements showed that the distribution was spherically symmetrical. Now a recent group of papers (*Phys. Rev.* 58, 500) from the University of Iowa proves that the results of the earlier experiments were only roughly correct. The first reaction studied was $Li^7+H^1 \rightarrow 2He^4$. With the improved technique now available and at higher bombarding voltages than were formerly used, a pronounced asymmetry appears in the distribution of the alpha particles. At 100 kev bombarding potential, for example, asymmetry is just barely discernible, but at 400 kev the number of particles ejected in a forward direction is 1.5 or 2 times as great as the number counted at 90° to the incident beam of protons.

The masses of elements heavier than those in the first period of Mendeléef's table are known in many cases with a smaller percentage error than those of the light elements. But since the most significant feature of atomic masses is the departure from the whole number rule, it is the absolute rather than the relative error which must be taken as a measure of their precision. Among the intermediate elements, Pollard (*Phys Rev.* 57, 1186) has collected the available data to make a new table of atomic masses from Ne^{20} to Fe^{57}, and a new mass-deviation graph which demonstrates with admirable clarity (though not for the first time) three interesting facts: first, elements lighter than Ne^{20} have atomic masses somewhat greater than the corresponding atomic numbers, except the standard O^{16}; second, for elements heavier than Ne^{20}, the opposite is true; and third, in the progression from one element to the next, much more violent fluctuations in mass occur in the lighter than in the heavier group. Already these facts are beginning to receive logical explanations in the quantum language of theoretical atom-builders.

SCATTERING OF PROTONS

A group of investigators (C. F. Powell *et al., Nature,* 145, 893) in England have developed a simple and rapid method of studying the scattering of protons by gases. Protons from the Liverpool cyclotron were passed along the axis of a small tube containing the gas. In the side of the tube, perpendicular to the axis, was a slit through which a wedge or cone-shaped bundle of scattered protons could emerge, scattered at various angles from different parts of the gas along the axis of the tube. A photographic plate, placed a small distance away and parallel to the slit and to the proton beam, caught these protons. Tracks made by the protons in the emulsion of the plate could then be examined, and the energy distribution of the scattered protons could be found. Only elastically scattered protons were found from oxygen, but from neon there came two groups, differing in energy by 1.4 Mev. The group of lower energy was attributed to inelastic scattering from Ne^{20}. Now Ne^{20} can be manufactured by bombarding fluorine with deuterons, in accordance with the equation:

$$F^{19} + H^{2} \rightarrow Ne^{20} + n^{1}.$$

Earlier studies of the neutron spectrum from this reaction led to the conclusion that Ne^{20} must have an excited state 1.4 Mev above its normal state, a fact which receives convincing support from the results of the Liverpool experiment.

COSMIC RAYS

During 1940, mesotrons almost if not quite monopolized the field of cosmic ray studies. These particles, which formerly passed under several aliases such as meson, yukon, barytron and heavy electron, have masses about 150 times that of the negative electron and carry a charge equal to that of an electron or of a positron. Their most remarkable property is their instability. With a lifetime of the order of 10^{-6} second they are presumed to disintegrate into an ordinary electron and a neutrino, but the latter is so elusive that convincing experimental evidence is difficult to find. Williams and Roberts (*Nature,* 145, 102) and Williams and Evans (*Nature,* 145, 818) have provided what is probably the best evidence to date. With a large cloud chamber two feet in diameter, they photographed some 50 kilometers of cosmic ray track. On their negatives they found certainly one and probably two mesotron tracks which ended abruptly in the gas of the chamber, each giving rise at its end to the thinner track of a fast electron proceeding in an entirely different direction.

More indirect evidence for the instability of the mesotron is provided by the experiments of Rossi, Hilberry, and Hoag (*Phys. Rev.* 57, 461) which confirm and extend other similar work. With an appropriately shielded triple Geiger-Müller counter they recorded the mesotrons at various altitudes from about 200 meters to 4,300 meters, thus determining how the particles were absorbed during their long passage through the atmosphere. Then the manner of their absorption in carbon was determined by the simple use of graphite blocks. From a comparison of the counts it was clear that air was apparently a much better absorber, mass for mass, than graphite. The discrepancy is only an apparent one, however, for in their long passage through the atmosphere, a considerable fraction of the mesotrons have time to decay and hence appear to be absorbed, though they really just disappear. In a compact absorber like graphite, the time of passage is so small that only a negligible percentage of the particles decay. All the data, as do those of Williams, lead to a value of the order of 2 x 10^{-6} sec. for the lifetime of the mesotron.

It may now be taken as definitely established that mesotrons are not a primary component of cosmic radiation, but that they are produced high up in the earth's atmosphere. Several free balloon flights by Schein, Jesse, and Wollan (*Phys. Rev.,* 57, 847) show that mesotrons have a maximum intensity at a height of about 16 km., and that the intensity falls off rapidly at greater or smaller distances from the earth's surface. They find, too, that mesotrons are produced by non-ionizing particles, presumably photons, as Bhabha and others suggested on theoretical grounds about two years ago.

Mesotrons at altitudes of six miles or less have been studied in cloud chambers. There is some evidence that they occasionally come in pairs, one positive and one negative. Although the agent responsible for the formation of these pairs is uncertain, yet there is an interesting similarity between this phenomenon and the creation of electron pairs by photons.

Now that the weather has been found to have an effect on the intensity of cosmic rays, the whole subject will probably begin to appear less abstruse to the layman. Blackett was the first to point out that the effect of atmospheric temperature on cosmic ray intensity could be explained by considering the effect which temperature changes have on the mesotron component of the radiation. Mesotrons are produced near the outer fringe of the earth's atmosphere. If the region where mesotrons originate is moved higher or lower, the mesotrons will reach the earth in a longer or in a shorter time, and this will cause changes in the numbers of them which decay before reaching sea level. This is exactly what happens when the mean temperature of the atmosphere changes. If a rise in temperature occurs, the air becomes less dense, the center of mass of a vertical column of the atmosphere must recede farther from the earth's surface, and a corresponding motion of the mesotron-producing region takes place.

Most of the work on this topic is referred to in a paper by Loughridge and Gast (*Phys. Rev.*, 58, 583) who themselves have investigated the effect of advancing warm or cold fronts on cosmic ray intensity. A moving mass of cold air, tending to keep close to the ground, drives a wedge under the warmer air in front of it. Just after the cold front has passed, the average temperature is lower, the center of the mass of air above a particular station is lower, the mesotron-producing layer is lower, and the cosmic ray intensity shows an increase of the order of one per cent. Loughridge and Gast find appropriate changes in intensity for both warm and cold fronts on the west coast of this continent, but observers (Y. Nishina *et al.*, *Phys. Rev.*, 57, 1050) in Japan find the effect only for the warm fronts, because the cold fronts which move over that country are comparatively shallow and are topped by warmer air masses.

X-RAYS

Attention has been directed from time to time during the last 25 years to faint spots found on Laue x-ray pictures which are not immediately explicable as Bragg reflections from recognized internal planes in the crystal. A revival of interest in this subject has been brought about recently by work in such widely separated places as Chicago and Bangalore. Long ago Debye showed that what is known as diffuse scattering was due to thermal vibration of atoms in the crystal. It is this diffuse scattering which is responsible for the extra spots on Laue diagrams.

Zachariasen's analysis (*Phys. Rev.* 57, 597) of the standard procedure for taking Laue photographs shows that the radial streaks due to diffuse scattering found by many observers should be a general feature of all Laue pictures, but whether they occur or not is a question of exposure times, since their intensity is small, particularly for crystals with high characteristic temperatures. With monochromatic radiation these radial streaks show so rapid a variation of intensity that the maxima appear as spots. Their positions are almost but not quite identical with the Laue directions; and therefore, in order that they may not be entirely masked by the intense Laue spots, the crystal which is used to examine them must be set so as just to avoid the regular Bragg reflections. One of the necessary conditions for the production of such photographs as these is a very small divergence of the incident beam. Zachariasen gives it as his opinion that this new effect was not discovered in earlier studies because the radiation used was too divergent.

Broadly speaking, the new theory shows that these maxima of diffuse scattering are caused by temperature vibrations of the crystal lattice, the atoms moving as whole units. Raman and Nilakantan (*Nature*, 145, 667) have given a more pictorial idea of the process by pointing out that temperature vibrations in the crystal, being reflected time and again from its boundaries, will set up a standing wave pattern in the crystal. This amounts to adding another periodicity to the crystal lattice, although it involves a dynamic, not a static, stratification.

CONSTANTS

From time to time new experiments are performed which increase the accuracy with which atomic constants such as the charge of the electron, *e*, and the Avogadro number, *N*, are known. The value of *e* as determined by Millikan's original experiments has been considered uncertain for several years, mainly because of doubt as to the true value of the coefficient of viscosity of air. For example, the five best determinations of this coefficient in the years 1936-37-38 have an extreme variation of nearly one-third of one per cent. Their weighted mean is quoted by Bearden as $1833.1 \pm 1.3 \times 10^7$ in c.g.s. units at 23°C. The situation has been showing steady improvement, however, because eight or ten years ago there was a spread of nearly one per cent in the results obtained by reliable workers.

About a year ago, Bearden (*Phys. Rev.* 56, 1023) published an account of a new determination of the viscosity of air which far exceeds any other in precision. It is the first step toward a new measurement of the electronic charge by the oil-drop method. As a check on the precision of the work, Bearden performed two independent experiments. They gave results which agreed within two or three parts in a hundred thousand. It is, therefore, with some satisfaction that it can now be asserted that the viscosity of air at 23°C. is $1834.12 \pm 0.06 \times 10^7$ c.g.s. units. This is 0.05 per cent higher than the weighted average of other recent determinations which was quoted above.

ELECTRON MICROSCOPE

During the last decade there has been an interesting challenge to technique in the hypothesis that if the well established rules of physical optics apply to the matter waves associated with particles such as electrons, then a microscope which employs these matter waves in place of those of light should have a theoretical limit of resolution of the order of 10^{-8}cm. Now, after several years of development, the electron microscope is emerging from the state of being a scientific curiosity into being a powerful tool with immediate applications (to mention only one) in the field of medicine. In such a microscope the image is produced by a stream of electrons which pass through the specimen just as light passes through an ordinary microscope slide. Carefully designed coils carrying steady currents act as "lenses" for this stream of electrons.

The literature of 1940 gives accounts (L. Marton, *Phys. Rev.*, 58, 57; E. F. Burton *et al., Phys. Rev.* 56, 1171) of the performance of two recently-completed microscopes, one at the R.C.A. Research Laboratories, the other at the University of Toronto. Photographs can be taken at a direct magnification of the order of 20,000, and the limits of resolution of the instruments (estimated at about 5×10^{-7}cm.) are so low that these photographs can afterwards be enlarged so as to bring the total magnification to something approaching 200,000. Already the R.C.A. instrument has shown the details of internal structure of germ cells which are themselves so small as to be almost at the limit of resolution of the ordinary optical microscope.

LOOKING AHEAD

It is foolish to count soon on the production of power by the fission of uranium. Many difficult problems must be solved first. The commercial use of such a source of power will probably have to be preceded by some discovery as important as the discovery of fission itself. Nevertheless, experiments will continue on the separation of isotopes, probably by thermal diffusion. In the next few years, problems of defense and rearmament will lead to the development of many new instruments to aid military science, and the diversion of physicists from academic to applied fields may create a noticeable but temporary decrease in the volume of pure research.

ORGANIC AND INORGANIC CHEMISTRY

By C. M. Suter

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SILVER—SILVER ION INTERCHANGE

It has been shown by Rollin (University of California) that when silver metal is placed in contact with a solution of silver nitrate a rapid interchange takes place in which silver atoms become ions and other silver ions are deposited on the metal. In a period of one hour a layer 100 atoms or more in depth was affected under some conditions. It was possible to demonstrate this interchange by having some radioactive silver (obtained by bombardment of palladium with deuterons from a cyclotron) present in the silver nitrate solution and measuring the amount of radioactivity possessed by the silver metal after remaining in contact with the solution. This investigation is a good example of the usefulness of a cyclotron as an aid in chemical research.

ATOMIC WEIGHTS

The latest report of the committee on atomic weights for the International Union of Chemistry, of which Baxter of Harvard is chairman, is of interest as it shows that the changes now made from time to time in these basic constants are of a minor nature. Based upon investigations published during 1939 hydrogen was changed from 1.0081 to 1.0080, iron from 55.84 to 55.85, and lutecium from 175.00 to 174.99. No other changes were made. In a series of papers appearing during the year by Baxter and co-workers the atomic weight of iodine was reported to be 126.915, differing but little from the previously accepted value of 126.92. In another paper the atomic weight of 132.91 for cesium was confirmed.

NEW INDUSTRIAL CHEMICALS

Each year a number of organic chemicals escape from the laboratory into the realm of industrial utility. As Boese, Jr. (Mellon Institute) has pointed out, diketene now belongs in this category; its value lies in its usefulness as an intermediate for the preparation of dyes, pharmaceuticals, and solvents. Ketene has been used for some time in making a variety of organic chemicals. Two molecules of this combine to give diketene.

In recent years methods have been devised by Hass and co-workers (Purdue University) for preparing the nitroparaffins by the vapor phase nitration of hydrocarbons obtained from petroleum. According to Gabriel (Commercial Solvents Corp.) a number of these compounds are now commercially available, and the study of their value as solvents and as intermediates continues to make progress. Vanderbilt and Hass have investigated the condensation of aldehydes with nitroparaffins to give nitro alcohols and they made from these a variety of amino alcohols. The possible usefulness of the nitro alcohols obtained from nitromethane and nitroethane in the synthesis of explosives has been pointed out.

Another newcomer to industry is melamine. Less than two years ago it was priced at $40 a pound and not many pounds were available. At present its price in large quantities is about one per cent of the former value. It is prepared from calcium cyanamide, a material obtained by heating atmospheric nitrogen with lime and coke. Melamine has become of interest because it is an intermediate in the synthesis of certain "amino plastics" that show remarkable stability to light and heat, and now that it is readily available further uses will likely be developed.

SYNTHETIC RUBBERS

The chance that an extension of the European war to the East Indies might make it difficult or impossible to obtain natural rubber has stimulated interest in the possibility of replacing this strategic material with synthetic products. The consumption of natural rubber amounts to about 1,800 tons per day. Neoprene, derived from acetylene, is being made at the rate of about 15 tons per day. The Buna rubbers, originally developed in Germany, will soon be made on a small scale. A plant that is being erected by the Standard Oil Company of Louisiana is scheduled to produce about five tons per day of Buna-N or Perbunan early in 1941. At least two of the large rubber companies also expect to produce a synthetic rubber on a similar scale very shortly.

Recently there has been announced a new variety of synthetic rubber known as Butyl rubber. This can apparently be made from cheaper raw materials than the other synthetics which can not hope to compete on a cost basis with natural rubber under normal conditions. It appears likely that the synthetic rubbers would be just as satisfactory as raw material for the manufacture of tires as the natural rubber and for certain special purposes they are far superior. It has been estimated that it would require about two years to increase the production of synthetic rubbers to the point of replacing the natural product. Appraisals of the synthetic rubber situation have recently appeared in *Industrial and Engineering Chemistry* and in *Fortune*.

The difficulties that have developed in securing an adequate supply of natural drying oils of high quality, such as tung oil, have greatly stimulated research in the manufacture of suitable substitutes. The dehydration of castor oil yields a material that is surprisingly similar to tung oil. Killefer, in the November issue of *Industrial and Engineering Chemistry,* points out that dehydrated castor oil can be used to replace either tung or perilla oil and that its film is permanently light in color. He believes that there will be a considerable permanent market for dehydrated castor oil as long as it can be sold for as much as two cents a pound less than tung oil. At present castor oil in this country comes entirely from Brazilian castor beans and the increased demand has raised the price of these considerably. The present commercial varieties of beans require much hand labor in harvesting and cannot be grown profitably in this country.

It is probable that the drying oil problem may be solved more satisfactorily by investigations now under way in various laboratories that have as their object the development of an inexpensive process for the separation of a satisfactory drying oil from such readily available materials as soy bean or fish oil. One process already in commercial use which has been described by Stingley (Armour and Company) involves the hydrolysis of glycerides, fractionation of the resulting fatty acids and recombining the fraction that contains the highly unsaturated acids with glycerol or pentaerythritol. So far marine oils have proved the most satisfactory raw materials.

SYNTHESIS OF TOLUENE AND PHENOL

The most important raw materials for the preparation of high explosives are toluene and phenol. The phenol present in coal tar many years ago proved inadequate for our present industrial demands and phenol has been commonly prepared from benzene by sulfonation or chlorination followed by treatment with alkali. Recently a phenol plant has been completed that makes use of a process that is new to this country. The two steps of this process are (1) conversion of benzene to chlorobenzene by the action of hydrogen chloride and air, (2) hydrolysis of the chlorobenzene to phenol with steam. Catalysts are necessary for both steps. The capacity of the new plant is 15,000,000 pounds a year.

Recently Grosse, Morrell and Mattox (Universal Oil Products Co.) described a process whereby n-heptane, a petroleum hydrocarbon, may be converted to toluene in high yields by the use of a catalyst such as chromic oxide on an aluminum oxide carrier. Practically all petroleums contain small amounts of toluene, and it may also be made by a thermal process. It is evident, therefore, that any toluene shortage brought about by the large scale manufacture of trinitrotoluene can be at least partly alleviated by the production of the hydrocarbon from petroleum sources.

SYNTHESIS OF PANTOTHENIC ACID

In an investigation of the factors involved in the growth of yeasts R. J. Williams and associates found in 1933 that a single acidic substance stimulated the growth of one strain of *Saccharomyces Cerevisiae* in a remarkable way. Since this substance was found to be widespread in nature, it was named "pantothenic acid." Obtaining this substance in pure form offered many difficulties. In 1938 it was reported that liver, the richest convenient source, contained about 40 parts per 1,000,000 of the acid. From this an amorphous product of high biological activity was isolated, that by micro methods was found to be a derivative of B-alanine which on hydrolysis yielded a dihydroxy acid containing five carbon atoms. Interest in pantothenic acid was enhanced by the discovery in 1939 by Elvehjem and co-workers that it was a member of the vitamin B complex, the so-called chick anti-dermatitis factor. In 1940, through the cooperation of a number of investigators, the structure of pantothenic acid was completely elucidated and its total synthesis accomplished. Incidental to this work, it was found that a related compound, "hydroxypantothenic acid," also possessed considerable biological activity.

COMPOSITION OF THE MARIHUANA FROM CANNABIS SATIVA

From early times it has been common knowledge that certain parts of various species of hemp, known under the common names of hashish, bhang, charas, ganja, and in this country as marihuana, possessed a powerful physiological activity. During the year Adams and co-workers (University of Illinois) reported on a comprehensive investigation upon the composition of the "red oil" obtained from Minnesota wild hemp. Previous investigators had isolated cannabinol from hemp, but, although this is toxic, it has no marihuana activity. Adams found that about one half of the red oil consisted of a new dihydric phenol which was named cannabidiol. This likewise was not physiologically active. Cannabinol was also isolated in a crystalline state for the first time as well as quebrachitol, an ether of *l*-inositol. The synthesis of cannabinol was finally achieved, establishing its structure beyond doubt as l-hydroxy-3-n-amyl-6, 6, 9-trimethyl-6-dibenzofuran, and the only uncertainty remaining in the structure of cannabidiol is the position of a double bond in the non-aromatic ring.

Treatment of cannabidiol with any one of a number of acidic reagents converts it into tetrahydrocannabinol, a colorless viscous oil which is highly active physiologically in the characteristic marihuana manner. More recently a tetrahydrocannabinol having similar activity has been obtained by condensing ethyl 5-methylcyclohexanone-2-carboxylate with olivetol followed by the action of methylmagnesium iodide. Reduction of the tetrahydro compound yields a hexahydrocannabinol that is also physiologically active. Dehydrogenation of tetrahydrocannabinol to cannabinol was also effected. While it is not certain that either of the synthetic compounds is responsible for the activity of marihuana, it is now clear what structure is associated with this activity, and isolation of the natural product should be greatly facilitated.

SYNTHESIS OF THE SEX HORMONE EQUILENIN

The isolation and determination of the structures of the sex hormones have been followed by many efforts to devise satisfactory syntheses of these compounds. It has not been until this year that a "total synthesis" of equilenin has been accomplished by Bachmann, Cole and Wilds (University of Michigan). This compound contains two asymmetric carbon atoms and hence exists in four stereoisomeric forms; all four compounds were prepared. Since equilenin can be converted to estrone and estradiol, the other important estrogenic hormones, the whole group may be considered to have been synthesized from relatively simple organic molecules. Of the four stereoisomeric equilenins the one which occurs naturally was found to be the most active physiologically although the other three were not devoid of activity.

ISOLATION OF AN ALLERGEN FROM COTTONSEED

Although the literature dealing with allergies is extensive, information about the constituents of materials that are responsible for allergic effects is limited. Investigation of the allergens present in cottonseed has been undertaken by Spies, Coulson, Bernton and Stevens (Bureau of Agricultural Chemistry and Engineering). They have succeeded in isolating a physiologically active protein possessing an unusual combination of properties. Since the original cottonseed exhibits a similar activity and the new substance corresponds in properties to the proteoses, it is to be referred to as a natural proteose. Isolation was accomplished through the separation of the protein picrate salt.

COMPOSITION OF HUMAN HAIR

An extensive investigation upon the cysteine, cystine, nitrogen and sulfur content of human hair by Clay, Cook and Routh (State University of Iowa) has shown that there is no consistent relation between the age of a person and the composition of his hair. There was appreciably more cystine and cysteine in male hair than female hair. Red hair was not different in composition than other hair but albino hair showed a lower cystine content. The total nitrogen and sulfur percentages showed no significant variations.

SYNTHESIS OF DIHYDRODIETHYLSTILBESTROL

An interesting aspect of the chemistry of the estrogenic hormones is the physiological activity of compounds that are not known in nature. One of these substances, dihydrodiethylstilbestrol, was first found as a byproduct in the demethylation of anethole. The methods for its synthesis hitherto available have either given low yields or required many steps. Docken and Spielman (University of Wisconsin) have devised a direct and convenient process that involves the addition of hydrogen bromide to anethole and treatment of the addition product with magnesium followed by demethylation. This synthesis makes readily available an estrogenic material that is essentially as active as estrone and estradiol.

SYNTHESIS OF PREGNANEDIOLS AND RELATED HORMONES

A distinct advance in making the sex hormones progesterone, testosterone, and desoxycorticosterone more readily available has been achieved by Marker and Rohrmann (Pennsylvania State College) who devised a method for preparing the pregnanediols from sarsasapogenin. The pregnane derivatives can be converted into the hormones by relatively simple procedures.

NEW OR IMPROVED SYNTHETIC METHODS

It was reported in 1939 by Kharasch and Brown (University of Chicago) that hydrocarbons can be chlorinated by sulfuryl chloride in the presence of a trace of organic peroxide. Extension of these chlorination studies to the aliphatic acids and acid chlorides has shown that, except for acetic acid and its chloride, these compounds are readily attacked. Contrary to the behavior of other chlorinating agents, substitution occurs preferentially on carbon atoms not attached to the carboxyl group. Butyric acid, for example, yields only 10 per cent of the alpha chlorination product, the other 90 per cent being equal amounts of the beta and gamma derivatives. If light is not excluded from the reaction mixture, sulfonation rather than chlorination takes place. Here again substitution does not occur in the alpha position.

The enhanced importance in recent years of polycyclic aromatic hydrocarbons increases the interest in any new method for their synthesis. Arnold, Collins and Zenk (University of Minnesota) have reported that dehydrogenation reactions of hydroaromatic compounds ordinarily effected by the action of sulfur or selenium at a high temperature can be brought about by heating with chloranil in xylene solution. This procedure reduces the chance for the rearrangements always possible at the higher temperatures.

It has been found by Norris and Klemka (Massachusetts Institute of Technology) that many amides can be dehydrated to the corresponding nitriles by heating with aluminum chloride or the double salt of this with sodium chloride. The conversion of ammonium salts to nitriles by these reagents gave poor results.

In an investigation of alpha-bromo-sec-alkyl ketones, Aston and Greenburg (Pennsylvania State College) have found that treatment with a sodium alcoholate results in oxide formation followed by a rearrangement of the oxide to a tertiary acid ester. Thus bromoisopropyl methyl ketone with sodium methoxide yields methyl trimethylacetate. The reaction is general as it occurs for other alcoholates and other ketones.

Bruson and Kroeger (Röhm and Hass Co.) have reported that 1,4-ditertiary glycols and the corresponding olefins or chlorides condense with aromatic hydrocarbons and phenols with the formation of one or more additional rings. This reaction has been named "cycli-alkylation."

Further studies by Marvel and coworkers (University of Illinois) upon the cyclization of dienynes have resulted in new methods for synthesizing complex polycyclic hydrocarbons and their derivatives. The dienynes necessary for these syntheses are obtainable by condensing acetylene with the proper ketones, followed by dehydration of the resulting glycols. For example, from *l*-decalone and cyclohexanone there results a glycol which after dehydration and cyclization with sulfuric acid gives an unsaturated ketone that is convertible into chrysene. These fundamental investigations are of potential importance for the preparation of a variety of natural products from readily accessible materials.

MECHANISM OF ORGANIC REACTIONS

An investigation by Morton and Richardson (Massachusetts Institute of Technology) of the steps in the Wurtz reaction has shown that no condensation occurs prior to the formation of a sodium alkyl. Hence the most likely mechanism for hydrocarbon formation involves the action of a sodium alkyl upon unreacted alkyl halide. Free radicals appear to play only a minor rôle in the reaction.

The relationships between the Claisen and Perkin types of condensation have been pointed out by Hauser and Breslow (Duke University). One interesting experiment they described consists in treating a mixture of benzaldehyde and ethyl acetate with sodium triphenylmethyl. This yields ethyl cinnamate as the principal product whereas ethyl acetate alone with the condensing agent gives ethyl acetoacetate. Hence, where there exists the possibility of both reactions occurring, the Perkin reaction is the one that takes place. It was also shown that benzaldehyde does not condense with ethyl isobutyrate in the presence of sodium ethoxide; sodium triphenylmethyl does bring about the reaction but if the reaction mixture stands for some time the condensation product is decomposed, the benzaldehyde undergoing disproportionation to acid and alcohol.

Hauser has also discussed at some length elimination and metathetical reactions, including those that involve rearrangements of compounds that contain an electronegative group. He concludes that reactions brought about by acid, acidic reagents or heavy metal salts which are electron acceptors, are initiated by an attack on the electronegative group while elimination reactions effected by bases start with an attack of the base upon the hydrogen. Explanations for certain special reactions were also outlined.

In a continuation of their studies of addition reactions Kharasch, Norton and Mayo (University of Chicago) have been unable to confirm the report of other investigators that n-propyl iodide is one product of the action of hydrogen iodide on propylene. Apparently the addition product cannot be changed as it can when hydrogen bromide is the reagent. It was observed, however, that the addition reaction proceeds much faster in the presence of a peroxide or of free iodine than when these are absent. The effect of the peroxide is apparently due to the formation of free iodine.

Since Bartlett (Harvard University) advanced the idea that the conversion of glycols to ketones occurs only through the Walden inversion type of mechanism several apparent exceptions have been reported. The observation by Criegee and Plate that both diphenylacenaphthenediols undergo conversion to the corresponding ketone by first order reactions was one of them. Bartlett and Brown have examined this reaction in detail and found that at least under some conditions conversion of the *trans* glycol to ketone occurs *via* the *cis* isomer. It has been observed by Milne and Suter (Northwestern University) that the formation of 2-indanone from *trans* indene glycol likewise occurs through the *cis* glycol as an intermediate step.

Various mechanisms have been suggested to account for the products that result when an alcohol or alkyl halide is condensed with an aromatic compound such as benzene. One of the possible intermediates in the reaction is an olefin. Price and Lund (University of Illinois) have found that when d-sec-butyl alcohol is condensed with benzene in the presence of boron fluoride the sec-butylbenzene is slightly optically active whereas with aluminum chloride the hydrocarbon that results is optically inactive. It was suggested that this might indicate a difference in mechanism for the two condensations. A totally unexpected observation was made by Pines, Schmerling and Ipatieff (Universal Oil Products Co.). The condensation of neopentyl alcohol with benzene in the presence of aluminum chloride gave as the sole product a low yield of neopentylbenzene, no rearrangement of the carbon chain resulting. Furthermore, neopentyl chloride under the same conditions gave 2-methyl-3-phenylbutane, a product likewise formed when isopropylethylene is the starting material. Hence neopentyl alcohol is not converted to the chloride as an intermediate step in the alkylation.

STERIC INHIBITION OF RESONANCE

The possibility that the resonance of aromatic nitro compounds might be inhibited when the nitro group lies between two methyls was first pointed out by Hampson of England three years ago. Wheland and coworkers (University of Chicago) have confirmed the existence of this effect in two ways. One of these is based on the theory that the acidity of a nitrated triarylmethane is affected by the ability of the nitro group to resonate with the ring in the normal fashion. By comparing the acid properties of a trinitrotriphenylmethane with a trixylyl compound where the nitro groups were adjacent to methyls it was found that the latter was the weaker acid. However, the effect was too small to be thoroughly convincing. Better evidence was found in a study of the rates at which various bromonitro compounds react with piperidine. The activating effect of the nitro group on the bromine was reduced to about three per cent of its previous value by the presence of adjacent methyls, whereas when the cyano group was the activating substituent the decrease was much less. This is significant since the resonance of the cyano group cannot be interfered with because of its linear structure. The inhibitory effect is apparently not large but has been shown to be detectable in every case so far studied.

ELECTROCHEMISTRY

By Colin G. Fink

Professor, Columbia University

THE ELECTRIC FURNACE

In the spring of 1940 The Electrochemical Society sponsored a symposium on the "electric furnace production of steels". A number of new developments in this electrothermic art were revealed and discussed. In the production of tool steels, stainless and other alloy steels, the electric arc furnace is distinctly superior to any fuel fired furnace. In electric furnace design the top charge furnace with "lift-swing-aside" roofs deserve special note. Very rapid charging of this furnace is a characteristic feature.

The commercial success of stainless steel is due primarily to the electric furnace and the ability to keep the carbon content of the alloy down to 0.10% C. Addition of small percentages of sulfur or selenium to the alloy improves the machining qualities.

W. Kroll of Niagara Falls, N. Y. succeeded by special electric furnace methods in producing ductile titanium, a notable feat never before accomplished. The possible uses of this new ductile, malleable metal have as yet not been thoroughly investigated. In nature, titanium is combined with oxygen and very tenaciously so. Of the 96 elements composing the crust of the earth, titanium is one of the most common.

THE STRATEGIC METALS

During 1940 the following seven metals were strategic as far as the United States was concerned: antimony, chromium, mercury, manganese, nickel, tin, and tungsten. Intensive investigations were carried out throughout the country in devising methods and means of meeting the demands of the defense program. The electrochemist is intimately connected with the metallurgy of each of the seven metals listed.

One of the principal uses of antimony is in the manufacture of plates for storage batteries; and there can be no submarines without storage batteries. Early in 1940 the Bunker Hill & Sullivan Company of Idaho started recovering antimony from their silver-copper ore at the rate of 1,000 tons of antimony metal per annum. Our total consumption is about 30 times this amount. The outlook is promising that calcium metal (electrochemically produced) may be substituted for the antimony in the lead plates of the batteries.

Chromium is used chiefly in the production of special steels (armor plate, etc.) made in the electric furnace. Investigations were under way for the utilization of our low-grade native ores of chromium.

Large quantities of mercury are used in electrolytic cells producing pure caustic soda. About 45 per cent of the mercury consumed in this country goes into the production of mercury salts such as fulminate of mercury and bichloride of mercury. Due to the greater demand for mercury, production of the mines, notably those of California, was materially speeded up.

The electrolytic recovery of manganese from low-grade native ores was continued at Knoxville, Tenn. throughout the year (see THE AMERICAN YEAR BOOK, 1939). The new Fink-Kolodney anode is in operation which greatly increases the current efficiency of the recovery process.

Nickel is supplied to the States by Canada which has for years controlled 92 per cent of the world's production of nickel.

Government orders for tungsten were placed in China, the chief tungsten center of the world. At the same time, extensive explorations were carried out in the western states, notably in Nevada.

As to tin, except for the little tin recovered in Alaska, this country, the largest tin consumer, must import all of its requirements from Malaysia and Bolivia. In planning to solve the tin situation, two of the large American metal companies built plants to extract tin from imported Bolivian ores and from tin alloy scrap. Another approach has been in the reduction and conservation of tin consumed by the canning industry. Electrolytically deposited tin produces a tin plate of higher quality with less tin than the old hot-dip, of molten tin, process. Early in 1940 the large tin plate producers made plans for the introduction of the electrochemical process. Another step towards the conservation of the tin supply and reduction in the tin requirements was brought about by the substitution of other metals in place of tin in "tin plate".

FUSED ELECTROLYTES

The standard method in this country for the production of magnesium metal is the fused chloride method. Magnesium chloride, as it is crystallized from water solutions during the process of separating it from other salts, appears as the hydrated salt, $MgCl_2.6H_2O$, that is, there are six molecules of water combined with one molecule of magnesium chloride. For the molten salt bath which operates at 700° C., far above the boiling point of water, these six molecules of water should be removed. This has been and still is a difficult problem. L. M. Pidgeon and N. W. F. Phillips of the Canadian National Research Laboratories reported their findings on the production of anhydrous magnesium chloride. They recommended chlorinating a granular mixture of magnesium oxide and carbon at 750° C.

In these war years there is no metal of greater military value than magnesium. It is the essential metal for modern airplane construction. It was the demand for magnesium metal for pyrotechnics for military purposes that started the magnesium metal industry in this country. And its rapid, phenomenal growth is one of the outstanding chapters in the history of American electrochemistry. In 1930 the United States' production totalled 500 tons of magnesium metal; in 1940, 6,500 tons. The Dow Chemical Company, the chief producer of magnesium in this country, greatly enlarged its facilities at Midland, Mich. during 1940 and started building a new plant at Freeport, Tex. where both magnesium and bromine will be recovered from sea water. It will be recalled that tons of bromine are being consumed in the manufacture of tetraethyl lead, the antiknock constituent of treated gasoline.

On a volume basis, the cheapest metals today, next to iron, are sodium, magnesium and aluminum, all electrochemically produced. A cubic foot of copper costs more than twice as much as a cubic foot of magnesium. Magnesium has become a diligent competitor of aluminum. In spite of the war pressure, the price of aluminum per pound was reduced to 18¢ in 1940. On a volume basis 18¢ aluminum is practically as cheap as magnesium at 27¢ per pound, the prevailing 1940 price.

The problem of stabilizing the surface of magnesium metal articles so as to resist corrosion has been accomplished by chemical treatment of the surface in one or the other bath containing either fluorides, or borates, or chromates, or silicates, or a combination of these.

ELECTROPLATING

In the electroplating field the year 1940 witnessed the development of a number of innovations, introduced a year or so ago. First in importance is the rapid growth of the highspeed electrodeposition of metals on wire and steel strip, replacing molten metal dip processes. Thus, for example, the approaching new standard for tin plate will be electroplate.

Ernest H. Lyons, Jr. reported at length upon the Meaker process for electrogalvanizing steel wire. The product is much superior to the older hot-dip method product. A current density of 2,000 amperes per square foot is used. This is very much higher than that used in still plating steel articles with zinc.

Another important development in the electroplating field that has now spread through the entire industry is the so-called "bright-plating", that is, the deposited copper, nickel, zinc, etc. is mirror bright as it leaves the plating bath and no polishing or burnishing of the plate is necessary. This does away with costly equipment and cuts down on the labor cost. The principle of bright plating is virtually the same in all cases, but the application of the principle varies from metal to metal. In bright nickel plate a small percentage of cobalt will develop the mirror effect; in zinc plating it is a trace of molybdenum; in bright copper plating it is the presence of a little diethylene triamine in the plating bath.

The brightening effect will work in either direction, that is, either cathodically or anodically. The electrolytic brightening of metals after casting and fabricating has likewise expanded tremendously during 1940. Here again costly polishing equipment is done away with and even hard alloys like stainless steel (18/8) readily develop a mirror surface. A number of important papers on the electrolytic polishing process were published by H. Pray and C. L. Faust of Battelle Institute, Sam Tour of Lucius Pitkin Laboratories, and H. H. Uhlig of General Electric Company.

Renewed, greater interest has been directed toward the electrodeposition of alloys with a view to introducing new plates for special purposes. As is well known, the electrodeposition of brass has been carried out commercially for many years. C. L. Faust published a valuable, detailed exposition in 1940 on all important investigations on alloy deposition that have been reported upon during the last ten years.

Sherlock Swann of the University of Illinois has published Part II of his exhaustive review on electrochemical methods of producing organic chemicals. A. G. Arend developed an electrolytic method for making lead resinate used in paints.

Fink and Lester reported at length on their researches on the electrodeposition of indium, a silver white metal similar to tin.

ELECTRONICS

The introduction of fluorescent lamps, previously reported upon, has become widespread throughout the nation, not only in places of business, stores, etc., but in private homes as well. The light is attractive and very restful on the eyes.

Researches have been continued on the production of organic chemical compounds in the electric discharge tube and, although nothing startling is as yet to be reported, the outlook for the future is most encouraging.

A new photoelectric cell was announced by Colin G. Fink and Johnston S. Mackay. The active constituent of the cell is bismuth sulfide. In contradistinction to other photoelectric cells, the Fink-Mackay cell is sensitive to long wave radiations, beyond the visible region. This should make the new cell particularly applicable for low temperature furnace regulation.

Fink and Adler published their results on a new cuprous oxide cell in which the oxide is electrolytically instead of thermally produced as has been common practice. The new method results in a more sensitive cell.

J. H. Dillon reported upon the highly efficient and smoothly operating spark plugs in which the nickel alloy electrode contains minute but very effective amounts of the radioactive metal polonium.

C. A. Laise has patented a new tungsten filament that is durable and non-sagging. It contains up to 10 per cent rhodium, and 0.5 per cent vanadium.

PERIODICAL PUBLICATIONS

American Physics Teacher
American Institute of Physics, 175 Fifth Ave., New York City.

Chemical and Metallurgical Engineering
330 West 42nd Street, New York City.

Chemical Engineering Catalogue
330 West 42nd Street, New York City.

Chemical Industries
522 Fifth Ave., New York City.

Chemist (The)
233 Broadway, New York City.

Industrial and Engineering Chemistry
332 West 42nd Street, New York City.

Journal of the American Chemical Society
12 Oxford Street, Cambridge, Mass.

Journal of Chemical Education
11 West 42nd Street, New York City.

Journal of Chemical Physics
175 Fifth Ave., New York City.

Journal of Mathematics and Physics
Massachusetts Institute of Technology, Cambridge, Mass.

Journal of Organic Chemistry
Mount Royal and Guilford Aves., Baltimore, Md.

Journal of Physical Chemistry
Mount Royal and Guilford Aves., Baltimore, Md.

Nature Magazine
295 Madison Ave., New York City.

Physical Review
175 Fifth Ave., New York City.

Physics
175 Fifth Ave., New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Chemical Society, Inc., 728 Mills Bldg., Washington, D.C.

American Electrochemical Society, Broadway and 117th St., New York City.

American Institute of Chemical Engineers, 50 E. 41st St., New York City.

American Institute of Physics, 175 Fifth Ave., New York City.

American Microscopical Society, Kansas State College, Manhattan, Kan.

American Physical Society, Columbia University, New York City.

American Society of Biological Chemists, University of Pittsburgh, Pittsburgh, Pa.

Association of Official Agricultural Chemists, Box 290, Penn. Ave. Station, Washington, D.C.

Copper and Brass Research Assn., 420 Lexington Ave., New York City.

National Research Council, 29 W. 39th St., New York City.

Society of Chemical Industry, Pratt Institute, Brooklyn, New York City.

Synthetic Organic Chemical Manufacturers Assn., 260 W. Broadway, New York City.

DIVISION XXII

BIOLOGY

ORGANIC EVOLUTION AND GENETICS

By Myron Gordon

Guest Investigator in Genetics, New York Aquarium

SPECIATION

Two symposia were held in 1940 on the general subject of "The relation of genetics to geographical distribution and speciation". The first was held at the meetings of the American Association for the Advancement of Science at Milwaukee, in June; the second was held at Columbus, O. in December. The second symposium was restricted to "Speciation" proper.

In opening the discussions Dr. Leon J. Cole of the University of Wisconsin said in part: "The species problem appears to-day, as it has for a century or so, to hold the master key to evolution. Darwin recognized this when he entitled his great work 'The Origin of Species'. The necessity of change as opposed to stability of organic forms was of course involved, and Lamarck had emphasized the importance of the environment in producing changes that were assumed to be directed and heritable. Darwin was not so much concerned with the way in which the variations arose —he rather took them for granted— as he was in how the favorable ones became selected, thus providing for the adaptation and consequent survival of their possessor. It was tacitly assumed by Darwin and by his successors that when there was considerable change it would result in new species, though geographic isolation was introduced as an important accessory. It is generally conceded that so long as the diverging forms remain in contact and are capable of interbreeding freely, specific difference can scarcely be attained. There is, therefore, not only the question of the *origin* of divergent forms but the equally important one of their *maintenance* as separate species."

These statements and those that follow immediately have been collected and published in the *American Naturalist* (74:193-278, 1940).

SPECIATION OF FISHES

Dr. Carl L. Hubbs, Curator of Fishes at the Museum of Zoology at the University of Michigan, in his contribution to the subject of "speciation" says that speciation is no aimless wandering of genes through the organic world but rather an orderly adjustment under rigid control of environment. The adjustment of an organism to its environment must be perfected through adjustments in character, interwoven with the selection of suitable niches. Dr. Hubbs emphasizes the point that the selection of a habitat to which a given form is fitted is in itself a form of natural selection, usually with some physiological speciation, and always involving the perpetuation of that which is in harmony and the elimination of that which is out of adjustment. Dr. Hubbs presents an illuminating statement on parallel modifications for life among widely differing taxonomic species.

EVOLUTION OF SUBSPECIES IN MICE

Dr. Lee R. Dice, director of the Laboratory of Vertebrate Genetics of the University of Michigan, states that the subspecies as it is recognized in the field and in the museum is composed of individuals of the same species which appear to be more or less similar in character and which live in the same general area.

Within every wide-ranging subspecies of animal there is a considerable amount of local variability, at least a considerable part of which is based on hereditary differences. The pelage color of Peromyscus and other small mammals tends to match the color of the surface soil of the habitat, demonstrating a control by the environment of part of the heredity of these animals. There is also evidence that some subspecies of Peromyscus have had a polyphyletic origin. Accordingly, the subspecies is considered to be primarily an ecologic unit rather than a unit of similar descent or of similar heredity.

BLOOD OF SPECIES

Doctors M. R. Irwin and R. W. Cumley of the Department of Genetics at the University of Wisconsin point out that experimental analyses of genetic differences and similarities between species are relatively few, owing to the difficulty of recognizing the effects of single genes apart from the particular complex in which they are found in one species or the other. Their method of analysis is the use of the antigen reaction of the red blood cells, assuming that the action of the gene on its particular antigen is more or less direct. These antigenic characters are as yet detectable only by the use of immunological reagents.

They state that there probably are three categories of genes, which make for resemblances and differences between related species. In the first class there are those genes of the two species which are homologous, and which produce the same effects. In the next class are genes which are related but not identical and which produce similar but not identical effects. Finally, in the third category there are those genes which are not alike and which make for the differences that exist between one species and another.

BREEDING STRUCTURE OF POPULATIONS

Prof. Sewall Wright of the University of Chicago states that the problem of speciation involves both the processes by which populations split into non-interbreeding groups and those by which single populations change their characteristics in time, thus leading to divergence of previously isolated groups.

Even if we had a complete account of the genetic differences within a group of allied species, we would not necessarily have much understanding of the process by which the situation had been arrived at. A single mutation, Dr. Wright points out, is not a new species, except perhaps in the case of polyploidy. The symmetry of the Mendelian mechanism is such that any gene or chromosomal type tends to remain at the same frequency in a population except as this frequency is changed either by some steady evolutionary pressure (such as that due to recurrent mutation, to various kinds of selection, to immigration and to differential emigration) or by the accidents of sampling, if the number of individuals is small. The elementary evolutionary process, from this viewpoint, is change of gene frequencies.

Dr. Wright attempts to show that the breeding structure of populations has a number of important consequences with respect to speciation. Partial isolation of local populations, even if merely by distance, is important, not only as a possible precursor of splitting of the species, but also as leading to more rapid evolutionary change of the population as a single system and thus more rapid differentiation from other populations from which it is completely isolated. Local differentiation within a species, based either on the non-adaptive inbreeding effect or on local conditions of selection or both, permits trial and error both within series of multiple allels and between gene combinations and thus a more effective process of selection than possible in a purely panmictic population, (a population that is large, breeding wholly at random under bi-parental reproduction).

SPECIATION OF BIRDS

Dr. Ernst Mayr of the American Museum of Natural History discusses speciation of birds from the point of view of a taxonomist and zoogeographer. First he presents a definition of a species: "A species consists of a group of populations which replace each other geographically or ecologically and of which the neighboring ones intergrade or hybridize whenever they are in contact or which are potentially capable of doing so (with one or more of the populations) in those cases where contact is prevented by geographical or ecological barriers."

Dr. Mayr says it is possible to generalize and simplify the diversified phenomena of evolution and to classify all species of birds according to the degree of speciation which they have reached, which in outline is as follows:

Stage 1: A uniform species with a small range followed by
Process 1: Expansion of range resulting in
Stage 2: A uniform species with a large range, followed by
Process 2: Differentiation into subspecies, resulting in
Stage 3: A geographically variable species with a more or less continuous array of similar subspecies (3a all subspecies are slight, 3b some are pronounced) followed by
Process 3a and 3b: Development of geographical barriers between some of the populations; also: Development of isolating mechanisms in the isolated and differentiating subspecies, resulting in
Stage 4: A geographically variable species with many subspecies completely isolated, particularly near the borders of the range, and some of them morphologically as different as good species, followed by
Process 4: Expansion of range of such isolated populations into the territory of hitherto strictly representative forms, resulting in
Stage 5: Overlapping ranges of closely related species either of which might be in any of the stages 1-4.

SPECIATION IN PEROMYSCUS

In another contribution to the problem of speciation, Dr. L. R. Dice summarized the results of over 16 years with mice. Different subgenera and different species group, so far as they have been tested in Peromyscus, are completely sterile. With the *truej* species group two included species are partially intersterile. In two other species groups the included species are potentially interfertile, but in nature are separated partly by geographical and partly by psychological (sexual) barriers, so that no interbreeding occurs. Within any given species of Peromyscus all the subspecies, so far as they have been tested, are potentially interfertile, but in nature some adjacent subspecies are separated by geographical, by ecological, or by sexual selection. Sexual isolation seems in this genus to be of especial importance.

LEVELS OF DIVERGENCE

Prof. Warren P. Spencer of the College of Wooster shows that divergence in the speciation of Drosophila has proceeded at various levels: gene mutation, chromosome inversion, inter-fertile races or subspecies, partial inter-subspecies and hybrid sterility, partial inter-group and complete hybrid sterility in one sex to complete hybrid sterility.

In some cases outward morphological changes have remained at a minimum, while major changes in gene realignments and sterility have taken place. In other cases fertility has remained close to normal, but morphological changes in geographically isolated groups have occurred. The concept emerges of a vast array of micro and macro-populations fortuitously fluctuating in size and distribution in time and space in response to changing ecological factors.

EVOLUTIONARY DIVERGENCE

Dr. Th. Dobzhansky of Columbia University recognizes two principle components in the processes of evolution. First, the diversity of organisms is increased. Second, discontinuity is developed. The problem is whether isolating mechanisms develop as a necessary consequence of the accumulation of genetic differences in general, or whether they represent a separate category of genetic changes which appear and become established only under certain special conditions. He believes that, on the basis of genetic information available, the origin of isolation is a process separate from that of the origin of other species differences.

Starting with the premise that each species, genus, and probably each geographical race is an adaptive complex which fits into an ecological niche somewhat distinct from those occupied by other species, genera, and races and that the adaptive value of such a complex is determined not by a single or a few genes but is a property of the genotype as a whole, Dr. Dobzhansky elaborates a theory for the process of evolution. But first to continue with his premise: The adaptive complex is attuned to its environment only so long as its historically evolved pattern remains intact. He states that interbreeding of different adaptive complexes may sometimes result in emergence of new genotypes which fit into unoccupied or sparsely settled ecological niches, hence the evolutionary role of hybridization.

Where hybridization jeopardizes the integrity of two or more adaptive complexes, genetic factors which would decrease the frequency or prevent the interbreeding would thereby acquire a positive selective value, even though these factors by themselves might be neutral. Race formation is essentially the development of genetic patterns which are adapted to a definite environment. Speciation is a process resulting in fixation of these patterns through the development of physiological isolating mechanisms. Clearly, raciation and speciation should not be conceived of as entirely independent processes, but the development of physiological isolating mechanisms must nevertheless be supposed to intervene only after the divergence of the adaptive complexes had been initiated. If races are to become species, isolating mechanisms must arise when the distinct adaptive complexes are exposed to the risk of disintegration due to inbreeding. Evidence in support of this theory and some objections to it have been given by Dr. Dobzhansky in the *American Naturalist* (74:312-321).

POLYPLOIDY IN EVOLUTION

Of the numerous processes which have been active in plant evolution, Dr. G. Ledyard Stebbins, Jr. of the University of California states, one is well enough understood from the cytogenetic point of view so that we can give a safe estimate of its role in species formation. That is the process of chromosome doubling or polyploidy. The effects of this process have been so far-reaching, and it is so wide-spread, that any one who would have a real understanding of species interrelationships and species evolution in the majority of plants must realize the significance and implications of polyploidy and the processes that accompany it.

Artificially induced polyploidy indicates that the size of the cells is increased; the water content of the cells is increased as is the size of the organs but the organs become shorter and broader; some plants become less branched and the time of blooming is delayed. The visible mutation rate is very much reduced and the polyploid derivative of a fertile plant is partially sterile. However, if the original diploid plant is sterile, the polyploid produced from it is usually fertile. This last is one of the most important factors in the development of new plant species. A large number of examples are presented where polyploidy has been effective in the formation of new forms.

Dr. Stebbins concludes that polyploidy has been most important in developing large, complex, and widespread genera; but in respect to the major lines of evolution, it has been more important in preserving relics of old genera and families than in producing new ones.

SEXUAL SELECTION

Dr. G. K. Noble and Brian Curtis, working at the Laboratory for Experimental Biology of the American Museum of Natural History, have studied the breeding behavior of the jewel fish, *Hemichromis bimaculatus*. They find that sexual selection has been demonstrated in this species by inducing the female to select between males with pigment cells artificially expanded with yohimbine and others with these cells contracted with adrenalin. The female has also been found to show greater preference for males stained with neutral red than for unstained ones. But a pale active male is preferred to a red, sluggish one. The nuptial colors serve to render both the sex-identifying and the sex-stimulating movements of the male more conspicuous to the female. Nuptial colors *per se* are not attractive to the female, although the greater interest of the jewel fish in red is expressed in its selection of red nesting sites.

The title of their paper is "The social behavior of the jewel fish, *Hemichromis bimaculatus* Gill," and it appeared in the *Bulletin of the American Museum of Natural History* (76:1-46, 1939).

THE ORIGIN OF INDIAN CORN AND ITS RELATIVES

"Four hundred and forty-seven years ago, on November 5, 1492, two Spaniards whom Christopher Columbus had delegated to explore the interior of Cuba returned with a report of a 'sort of grain they call maiz which was well tasted, bak'd, dry'd and made into flour.' And so was introduced to the white man, a plant which has since become, from the standpoint of total production, the second most important food plant in the world, a cereal treasure of immensely greater value than the spices which Columbus travelled so far to seek in his search for a westward route to India." Pre-Columbian records of the history or even mention of the maize plant have not been found, either in the Bible or in any Hebrew or Sanskrit manuscript prior to 1511. Neither the Greeks nor Egyptians figured it. The Chinese scholars were not acquainted with it and even the records of the ancient Americans, the Incas, Mayas, and Aztecs, tell nothing of its history.

The task which Dr. P. C. Mangelsdorf, assistant director of the Texas Agricultural Experiment Station, and Dr. R. G. Reeves, professor of biology in the School of Arts and Science, College Station, Texas, have attempted is to gather together most of the available information, particularly that recently discovered from genetical and cytological studies. These modern approaches to the problem of maize origin, they believe, provide the most promising avenue of attack, for, they say, it is rapidly becoming apparent that evolution is primarily a matter of gene change and chromatin rearrangement. "If," they say, "we can discover how the hereditary units, the genes, or the structures on which they are borne, the chromosomes, differ from each other and resemble each other in maize and its relatives, we may finally develop a picture of the common ancestor, or ancestors, and devise a satisfactory hypothesis to explain how the different species came into existence."

Before going into the details of cytogenetic researches, the authors have presented a readable and extremely interesting account covering the botanical history of the precursors of maize: Teosinte, Euchlaena and Tripsacum. They gather evidence from geology and paleobotany, from archaeology and ethnology, from morphology, and from geographical distribution of maize in the new world and the old.

The cytogenetic review covers a wide field. They take up the chromosome numbers and behavior in maize and its relatives and their hybrids. They describe parthenogenesis in intergeneric crosses, the genetic composition of Tripsacum in color factors and the cytogenetics of Tripsacum hybrids. A special division is given to the origin of Teosinte and maize and Tripsacum. A revealing chart clearly sets off their characters in relation to some 20 items from such matters as their growth habit, which is an annual in Zea, long-lived annual in Euchlaena, and a perennial in Tripsacum, to the matter of resistance to the diseases affecting the plants.

Probably the most interesting portion to the layman of their monographic treatment is the section devoted to maize in relation to culture and civilization from the time of man's arrival in America. They gather their data from ancient cultures and civilizations of the Andean and Middle American peoples. They trace the influence of maize in American agriculture from evidence presented by domesticated animals, cultural methods, and related domesticated plants. The monograph (*Bulletin No. 574*) was issued in May 1939 by the Agricultural and Mechanical College of Texas at College Station.

GENE FREQUENCIES IN MAN AND FISH

When phenyl-thiocarbamide in concentrations of 6.25, 50.0 and 400.0 parts per million is offered for tasting, some find the first perceptibly bitter but not necessarily unpleasant as if sugar were desired; the second would be, to most tasters, unpleasantly bitter, and the third decidedly so. Non-tasters might notice some slight bitterness at the strongest level. The chemical was offered apes to test their taste sense and compare it with man. Twenty-six per cent of them could not taste the substance and this compares with 25-30 per cent for man. These traits are inherited.

R. A. Fisher, E. B. Ford, and Julian Huxley in their paper, "Taste-testing the Anthropoid Apes," state: "The existence of a dimorphism in the taste test, parallel to that known in man, in at least two of the man-like apes, is a most remarkable fact. . . . Without the conditions of stable equilibrium it is scarcely conceivable that the gene-ratio should have remained the same over the million or more generations which have elapsed since the separation of the anthropoid apes and hominid stocks." Their story appears in *Nature* (144:750-751).

Comparing the gene frequencies for inherited patterns in Mexican fishes from collections taken in 1867, 1902, 1932, and 1939, Myron Gordon, writing in the *Records of the Genetics Society of America* (8:118), points out that some genes have the same approximate frequency throughout these periods.

FURTHER CONTRIBUTIONS

M. R. Irwin and L. J. Cole of the University of Wisconsin reported on their results of antigenic tests on the relationship in pigeons. Their paper entitled "Further studies of the interrelationships of cellular characters in Columbidae" appeared in *Genetics* (25:326-336).

A. H. Sturtevant of the California Institute of Technology described the relation between the distribution of genes in the *affinis* configuration and that in the other members of the subgenus. His paper entitled "Genetic data on Drosophila affinis, with discussion of the relationship in the subgenus Sophophora" appeared in *Genetics* (25:337-353).

S. Glueksohn-Schenheim of Columbia University described the developmental effects of three unilocal factors in mammals. Her paper "The effect of an early lethal (t^0) in the house mouse" was published in *Genetics* (25:391-400).

A paper dealing with the production of fertile, true-breeding hybrids which combine the characters of two different species or genera was presented by J. G. O'Mara in *Genetics* (25:401-408) under the title of "Cytogenetic studies on Triticale I. A method for determining the effect of individual secale chromosomes on Triticum."

In the paper entitled, "The genetics of sex determination in the family Amaranthaceae", Merritt J. Murray of Cornell University discussed the evolution of dioecious forms from hermaphroditic ones (*Genetics* 25:409-431).

In "Somatoplastic sterility as a cause of seed failure after interspecific hybridization", D. C. Cooper and R. A. Brink describe the mechanism of the collapse of the immature seed that causes sterility following interspecific matings in flowering plants (*Genetics* 25:593-617).

D. G. Langham of Cornell University described results which are interpreted as supporting the theory of the origin of maize from teosinte by relatively few large-scale mutations in *Genetics* (25:88-108). The title of his contribution is "The inheritance of intergeneric differences in Zea-Euchlaena hybrids".

William H. Burt of the University of Michigan described the importance of territoriality in mammals, emphasizing the significance of the size of the range of the individual and group, the method of the defence of the territory, how it is selected and the method in the dispersal of the young. Details may be found in "Territorial behavior and population of some small mammals in southern Michigan". It was published as paper No. 45 by the Museum of Zoology of the University of Michigan in their *Miscellaneous Publications* in 1940. In the same series of publications, No. 48, L. C. Hubbs and R. M. Bailey revive the theory of the possible origin of new species through hybridization. Their paper is entitled "A revision of the black basses (Micropterus and Huro) with descriptions of four new forms."

H. J. Muller has done the geneticists a great service in preparing a "Bibliography on the genetics of Drosphila" which was published by Oliver and Boyd. It contains over 3,000 titles.

R. A. Fisher has analysed the data collected by Dr. Nabours of Manhattan, Kansas on *Paratettix texanus* living in parts of Mexico and Texas. The data agree in demonstrating a mutual avoidance of different dominant variants. "Compounds" of different dominants, says Dr. Fisher, are less frequent than they should be on any purely genetical theory. Details may be found in the *Annals of Eugenics* (9:109-122) under the title of "Selective forces in wild populations of *Paratettix texanus*."

MICROEVOLUTION

This term has been used by Dobzhansky (see THE AMERICAN YEAR BOOK, 1939) for evolutionary processes observable within the span of a human lifetime, as opposed to macroevolution on a geological scale. "It will be one of the major contentions of this book," Dr. Goldschmidt says in his *The Material Basis of Evolution,* "to show that the facts of microevolution do not suffice for an understanding of macroevolution." The latter term is used in Goldschmidt's book for the evolution of the *good species* and all the higher categories. Microevolution leads to diversification strictly within a species, usually, if not exclusively, for the sake of adaptation of a species to specific conditions within the area which it is able to occupy.

This process, says Goldschmidt, has nothing to do with the origin of new species. The subspecies are only diversifications within a species, but there is no reason, he adds, to regard them as incipient species.

The change for species to species, it is claimed, is a change involving a complete change of the primary pattern reaction system into a new one—a *systemic mutation*.

The effectiveness of systemic mutation is tremendous. Macroevolution may proceed by large and sudden steps which accomplish at once what small accumulations can not perfect in eons and this on the specific as well as on any level. Goldschmidt claims further that species and higher categories originate in single macroevolutionary steps as completely new genetic systems.

Dr. Goldschmidt summarizes his views on the significance of small mutations, polymorphism, subspecific and geographical variations, indeed practically all minor inherited traits, saying that they lack significance for evolution. He italizes the following passage: "Subspecies are actually neither incipient species nor models for the origin of species. They are more or less diversified blind alleys within the species. The decisive step in evolution, the first step toward macroevolution, the step from one species to another, requires another evolutionary method than that of sheer accumulation of micromutation".

Whether or not one agrees with Dr. Goldschmidt's general conclusions, every geneticist and biologist interested in evolutionary processes will be in debt to him for his presentation of the relationship of the facts of development to this subject. I quote:

"Evolution means the transition of one rather stable organic system into a different but still stable one. The genetic basis of this process, the change from one stable genetic constitution to another, is one side of the problem. . . . But there is also another side. . . . The germ plasm controls the type of the species by controlling the developmental processes of the individual. Whatever may be our conception of the germ plasm, mosaic of genes or chromosomal pattern, the specificity of the germ plasm is its ability to run the system of reactions which make up the individual development, according to a regular schedule which repeats itself, with the purposiveness and orderliness of an automaton. Evolution, therefore, means the production of a changed process of development, controlled by the changed germ plasm, as well as the production of a new pattern of germ plasm. A change with the germ plasm, therefore, is of evolutionary significance only if the subsequent different processes of development are again properly integrated to produce a balanced whole, the new form. It is of decisive importance for the understanding of evolution to take into consideration the potentialities of the developmental systems for a more or less radical change. In other words, the *action* of the germ plasm, the genes, or what you will, in controlling orderly development has to be taken into account when we try to link genetical changes with the resulting evolution."

This analysis is carried out in great detail. Goldschmidt creates the term of "the hopeful monster" to express the idea that mutants producing monstrosities may have played a considerable role in macroevolution. Here is an example: "A fish undergoing a mutation which made for a distortion of the skull carrying both eyes to one side of the body is a monster. The same mutant in a much compressed form of fish living near the bottom of the sea produced a hopeful monster, as it enables the species to take to the life upon the sandy bottom of the ocean, as exemplified by the flounder."

Dr. Goldschmidt's book has aroused a great deal of discussion. In another review of the book, written by Dr. Th. Dobzhansky, the author of *Genetics and the Origin of Species* (see THE AMERICAN YEAR BOOK,

1939) the following has been said, Goldschmidt's theory has been brilliantly developed and masterfully presented. In his review entitled "Catastrophism versus evolutionism" (*Science* 92:356-358, 1940) Dr. Dobzhansky says that while he does not believe Goldschmidt's theory is valid, he admits that Goldschmidt has marshalled an impressive array of evidence in its favor. He has pointed out the weaknesses and deficiencies of the Neo-Darwinian concept of evolution which are numerous as every partisan ought to admit. "It would seem", Dr. Dobzhansky says, "that this fact alone obliges anyone interested in the modern evolutionary theory to read Goldschmidt's book."

OTHER BOOKS

Mammalian Genetics by William E. Castle, professor emeritus of Genetics, Harvard University, published by the Harvard University Press. In the preliminary chapters, Dr. Castle presents the essentials of Mendelian inheritance. The outstanding contribution of the book, however, is the compilation of the known inherited traits, chiefly in the rodents: mice, rats, guinea-pigs and rabbits. A chapter covers the more important gene mutations of domesticated animals, cattle, horses, sheep, dogs and cats. For an encore, Dr. Castle has added a chapter on the major contributions of fish genetics to the science. Eight tables list the many discovered genes. The bibliography is rich in support of the data presented. The book is a major contribution to the study of vertebrate genetics.

The Course of Evolution by J. C. Willis, published by the Cambridge University Press. According to Willis the process of evolution appears not to be a matter of natural selection of chance variations of adaptational value. Rather it is working upon some definite law that we do not yet comprehend. The law probably began its operations with the commencement of life, and it is carrying this on according to some definite plan. Evolution most probably goes on by definite single mutations which may have some functional advantage. Evolution, Willis says, goes on in what one may call the downward direction from family to variety, not in the upward, required by the theory of natural selection. Natural selection has no significance to evolution.

The New Systematics, edited by Julian Huxley, published by the Oxford University Press. The rise of other branches of biology, says Huxley, has been exerting a profound effect on the outlook of taxonomists. Genetics, cytology, ecology, selection theory, field natural history, palaeontology, even developmental physiology—they all are proving to be relevant to this or that aspect of taxonomy. . . . Systematics has become one of the focal points of biology. Here we can check our theories concerning selection and gene-spread against concrete instances, find material for innumerable experiments, build up new inductions: the world is our laboratory, evolution itself our guinea-pig.

Julian Huxley has gathered together an impressive group of biologists who, in turn, have written significant contributions to the newer approaches to systematics. The volume is sponsored by the Association for the Study of Systematics in relation to General Biology.

In all there are 22 essays. They include "Mutations and Geographical variations" by N. Timofeeff-Ressovsky; "The statistical consequences of Mendelian heredity in relation to speciation" by Sewall Wright; "The problem of closely related species living in the same area" by C. Diver; "Embryology and taxonomy" by G. R. DeBeer; "Natural hybridization in relation to taxonomy" by H. H. Allan; "The new systematics of cultivated plants" by N. I. Vavilov.

In *The Rattlesnakes,* Howard K. Gloyd presents this "Study in zoogeography and evolution". It is published by the Chicago Academy of Sciences. Dr. Gloyd reviews and revises the systematics of the rattlesnakes. He brings together information concerning the distribution, and variation of each form, indicates their probable genetic relationship and suggests the most conspicuous evolutionary tendencies among the rattlesnakes, and the probable center of origin of the group as a whole.

Adaptive Coloration in Animals by Hugh B. Cott, published by Methuen and Co., London. In the introduction to this book Julian S. Huxley says that the facts of cryptic, warning and mimetic coloration pose searching questions to the geneticists, and demand a recasting of many current views on the efficacy and mechanisms of selection. A series of brilliant drawings and photographs help Dr. Cott to demonstrate how nature, through natural selection, employs the most elaborate optical-psychological devices to enhance conspicuousness where conspicuousness is advantageous, to reduce it where obliteration is the biological aim.

ENTOMOLOGY

By E. Porter Felt

Bartlett Tree Research Laboratories

The manifold interests of both amateur and professional entomologists were clearly evident in the activities of 1940. The amateur found much of interest in the beauty of insects and their greatly diversified habits. The specialists were primarily interested in bettering the classification of their favorite groups or in extending entomological knowledge by the discovery and description of new species.

INSECTICIDES

The keen interest in the development of better means for the control of injurious insects is especially evident in the search for insecticides which may be used in the place of arsenical compounds. There continues to be as in the past objections among many to applications which disfigure foliage and there is also a decided preference for materials which can be applied to garden crops without danger to pets or domestic animals. Pyrethrum and rotenone continue to be centers of interest in these investigations. They are extensively used by gardeners. The chemists are busy investigating the possibilities of other plant constituents and also of synthetic compounds.

A HALF CENTURY OF ENTOMOLOGY

The American Association of Economic Entomologists arranged for a review of entomological progress at its Golden Anniversary meeting held at Columbus, Ohio. The accounts by five participants—Dr. C. L. Marlatt, a leader in Federal plant quarantine work and for a number of years chief of the Federal Bureau of Entomology and Plant Quarantine; Prof. Lawson Caesar of the Ontario Agricultural College, Guelph, Ont., recently retired; Prof. C. L. Metcalf of the University of Illinois, Prof. E. O. Essig of the University of California, and Dr. S. A. Rohwer of the U. S. Bureau of Entomology and Plant Quarantine—give a summation of the developments, each limited to a decade in the order named. These suggestive and inspiring papers were published in the February *Journal of Economic Entomology*. They give an authentic history of American entomology. The numerous citations of the more important publications during this period of rapid development are most helpful guides to the varied literature of the subject, both systematic and economic.

SIGNIFICANT TRENDS

The paper of Dr. A. C. Parman on research in preventive entomology brings to notice the present day trend which seeks to prevent injuries through a careful study of pests and the conditions favorable to their development rather than to emphasize methods of control of an enemy in the midst of a serious outbreak, though these latter are frequently necessary. This type of work is of immense practical importance. It is ecology applied to the insect problem.

The marked reduction, approximately 60 per cent, of the number of elms found infected with the Dutch elm disease the past season, taken in connection with the earlier history of the trouble in the United States, is at least suggestive of possibilities of prevention through the systematic discovery and destruction of diseased and sickly elms or parts of elms, thus reducing or eliminating the centers of infection and greatly restricting the development of the principal carrier, the European elm bark beetle. The careful study of the potentiality of other insect carriers and their possibilities are a logical development.

Field tests with the milky disease of the Japanese beetle have given most encouraging results as to the possibility of obtaining a gratifying degree of control of this pernicious introduction. It is one phase of prevention, namely, the development of better natural control.

ENTOMOLOGICAL MEETINGS

The diverse country-wide interest in entomology is indicated by the several meetings of the year. The national meetings occurred at Columbus, Ohio, in December 1939; the Cotton States Branch meeting at Birmingham, Ala., in February; the Eastern Branch holding a summer meeting at the Nature Study Camp of the Pennsylvania State College and its regular meeting in November at Atlantic City, N. J.; the Pacific Slope Branch in June at Seattle, Wash. Among other entomological gatherings was the Pest Control Operators Conference, Purdue University, in January. This organization of individuals and firms, engaged largely in controlling pests in buildings, is developing a more scientific approach to the problem than in earlier days. Still other meetings were: North Central Entomologists, Purdue University, in March; Conferences of Entomologists of Maine and Canadian Maritime Provinces at Orono, Me., in January; the Annual New Jersey Mosquito Conference at Atlantic City, in March; the Fifth Annual Florida Conference at Gainesville, in March; Rocky Mountain Conference, Colorado, in August; the Fourth Tobacco Insect Conference, in August, in Blacksburg, Va.; the Eleventh Annual Conference of Mosquito Abatement Officials in California, in December, a major feature being the weighing of evidence as to the innocence or guilt of mosquitoes in transmitting equine encephalomyelitis.

NEW PESTS

The recent discovery of a European pine sawfly in a number of New Jersey localities and the possibilities of serious injury later indicates that even the extended plant quarantine developed since 1912 is unable to prevent all introductions, although it has undoubtedly helped greatly in excluding serious insect pests and plant diseases.

WIND DRIFT

Stations for the study of the aerial distribution of insects have been established at Tallulah, La., and Durango, Mexico. Wingless forms, such as ants, spiders, and mites, were taken at all elevations up to 15,000 feet. The work has demonstrated the possibility of long-distance spread of insects by air currents.

JUVENILE OR POPULAR BOOKS

Introducing Insects, for beginners, The Jacques Cattell Press, Lancaster, Pa.; *Working with Nature* by Eleanor King and Wellmer Pessels, Harper, a children's book; *The World of Insects* by Carl R. Duncan and Gayle Pickwell, McGraw-Hill, brief and non-technical.

ECONOMIC BOOKS

Mosquito Control by William B. Herms and Harold F. Gray, Commonwealth Fund, N.Y.; *The Bark and Timber Beetles of North America North of Mexico* by W. J. Chamberlin, Oregon State College Cooperative

Association; *Important Tree Pests of the Northeast,* a volume of bulletins published by The Massachusetts Forest and Park Association; *Insect Transmission of Plant Diseases* by Julian Gilbert Leach, McGraw-Hill; *Entomophagous Insects* by Curtis P. Clausen, McGraw-Hill.

BOOKS ON SPECIAL GROUPS

The Bionomics of Entomophagous Insects, Part 2, by W. E. Balduf, Planograph, John S. Swift Company; *Plant Galls and Gall Makers* by E. P. Felt, Comstock Publishing Company; *Index VI of American Economic Entomology* should appear early in 1941; *The Butterflies of the Niagara Frontier Region* by William Wild, Buffalo Museum of Science Press; *A Synopsis of the Hemiptera-Heteroptera of America North of Mexico* by J. R. de la Torre-Bueno, Brooklyn Entomological Society; *Fleas of the Eastern United States* by Irving Fox, Iowa State College Press; *The Spider Book* by John H. Comstock, revised and edited by W. J. Gerstsch, Doubleday Doran.

TEXTS

A Laboratory Guide in Entomology for Introductory Courses, by Robert Matheson, Comstock Publishing Company; *A Laboratory Guide to the Study of the Evolution of the Wings of Insects* by J. Chester Bradley, Daw, Illston and Company; *An Introduction to Entomology* by J. H. Comstock, ninth edition.

PERSONNEL

The retirement of Lawson Caesar, professor of entomology for many years at the Agricultural College, Guelph, Ont., and provincial entomologist, occurred last June. Henry M. Baker was appointed State Entomologist of Missouri. Dr. C. I. Bliss is now connected with the Connecticut Agricultural Experiment Station as a biometrician on a half time basis, a promise of expert mathematical aid in entomological investigations. The award for the best paper presented before the 1939 meeting of the Eastern Branch of the American Association of Economic Entomologists went to Raimon L. Beard of the Connecticut Agricultural Experiment Station. Dr. James G. Needham, Cornell University (retired), was visiting professor of biology for the second semester in the University of Puerto Rico. E. Graywood Smyth, for nine years entomologist of the W. R. Grace Sugar Estates in Peru, has established a laboratory on the Hillchest Woods estate in California. His collection of 90,000 insects is available for study. Dr. Raymond L. Ditmars of the New York Zoological Park has been appointed curator of the Department of Living Insects to be established in the spring of 1941. The Henry Clinton Fall fund for the promotion of the study of entomology at Dartmouth will be used at first to purchase entomological equipment for the Dartmouth College Museum. The Charles Robertson collection of insects, mostly bees and wasps, has been acquired by the Illinois State Natural History Survey, now quartered in the new $800,000 Natural Resources Building dedicated Nov. 15, 1940. The Bureau of Entomology and Plant Quarantine took over June 27 a new four-story building, costing $400,000, at Hoboken, N.J. It will be used in the inspection and treatment of imported plants.

NECROLOGY

Charles N. Ainslie, for many years with the U.S. Bureau of Entomology and Plant Quarantine, died Dec. 5, 1939 at Sioux City, Iowa. Roy R. Reppert, Extension Entomologist, Texas A & M College, died March 13. Rowland W. Haegle, assistant entomologist, Idaho Agricultural Experiment Station, died at Parma, Idaho. Willis S. Blatchley, widely known naturalist and entomologist, Indianapolis, died May 28. E. P. Van Duzee, curator of the Department of Entomology, California Academy of Science, died June 2. Esther Hastings Hart, entomologist and delineator with the Federal Bureau of Entomology over 20 years, died Aug. 3. Otto E. Plath, entomologist and professor of biology at Boston University, died Nov. 5. Grace E. Sandhouse, specialist on bees and wasps, U.S. Bureau of Entomology and Plant Quarantine, died Nov. 9. Charles W. Woodworth, widely known as one of the earlier entomologists on the west coast, died Nov. 19.

BOTANY

By Willis H. Bell

Associate Professor, The University of New Mexico

MORPHOLOGY AND ANATOMY

Research in morphology centered in 1940 on phylogenetic relationship while the work in straight anatomy was of a developmental, experimental or descriptive nature.

Artschwager tried to evaluate some of the vegetative characters of sugar cane in terms of taxonomic usefulness, while Cooper reported on macrosporogenesis and embryology of *Portulaca oleracea,* and Stokey described spore germination and vegetative stages in the gametophyte of *Hymenophyllum* and *Trichomanes.* Abbe and Earle presented the results of their investigation on the inflorescence, floral anatomy, and morphology of *Leitneria floridana,* while Boke published on the histogenesis and morphology of the phyllode in certain species of *Acacia.* Bonnett added a paper on the development of the staminate and pistillate inflorescence of sweet corn. Thompson reviewed the morphology of the cone in Coniferae.

Cross made a study of the development of the foliage leaves of *Taxodium distichum* and Barghoorn described the origin and development of the uniserriate ray in conifers. Carpenter discussed the fertilization and early embryo development in the potato. Bates set forth the manner of seed germination and seedling anatomy of *Commelina virginica* while Havis made similar observations on *Brassica* seedlings. Foster carried on research on the growth of the shoot apex of *Cycas revoluta,* and Tukey and Young gave a histological study of the developing fruit of the sour cherry.

Carpenter reported on the anatomy of *Urginea maritima,* Duncan studied the cytology of the sporangium development in *Azolla filiculoides,* and Houghtaling gave results of studies on cell size in the tomato. Andrews described the anatomy of the secondary wood of pteridosperms. Woodcock made a histological study of the seed of snapdragon, and Whitehead and Brown examined the structure of the seed of *Hymenocallis occidentalis.*

One of the papers which shows the experimental trend which may be looked for in the future was Sinnott's description of materials and methods for studying growth and differentiation in living plant meristems.

CYTOLOGY AND GENETICS

Baitsell discussed a modern concept of the cell as a structural unit, and Shrader presented the present status of mitosis while Kater reviewed amitosis.

As usual the nucleus with its chromosomes was widely studied but other aspects of the cell were not neglected. Barrows reported on the lamellate structure of cellulose membranes in cotton fibers and Francis reported on spiral systems in the organization of living material. Newcomer summarized the subject of mitochondria, while Jones reported on nuclear changes affecting growth, and Tenney described the cytology of parthenogenesis in *Poa pratensis,* and Scott observed nuclear size in *Ricinus communis.*

The use of colchicine in cytogenetic research continued during 1940. It was used by Emsweller and Brierly in inducing tetraploidy in *Lilium,* while Dermen and Brown used it in killing plant tumors, and Eigati through its use influenced the division of the generative cell in *Polygonatum, Lilium,* and *Tradescantia.*

A favorite cytological subject was the chromosome numbers of various species. Westfall investigated the chromosomes of *Lilium tigrinum,* Brown and Clark noted the chromosome complement of *Bumelia lanuginosa* and its phylogenetic significance, and Burton made chromosome counts in the genus *Paspalum.* Wahl recorded chromosome numbers and observed meiosis in the genus *Carex,* while Young worked on *Desmodium* and *Lespedeza,* and Church made chromosome studies in a number of *Gramineae.*

Correlated with research on chromosome numbers were observations on increased chromosome complements. Beasley presented the origin of American tetraploid *Gossypium* and the hybridization of American 26-chromosome and 13-chromosome Asiatic species. Livermore gave the effect of chromosome doubling on the crossability of certain species of *Solanum.* Beasley produced polyploids in *Gossypium.* Stebbins discussed the significance of polyploidy in evolution.

The production of chromosome aberrations and deletions by radiation continued. Clark and Copeland described chromosome aberrations in the endosperm of maize. Faberge and Rick reported on chromosome fragmentation in *Tradescantia* by x-rays, and Sox reported on the time factor in x-ray production of chromosome aberrations. Chatters induced mutation in snapdragon by treatment with fast neutrons, and Young listed a white flower from x-ray treated tomato seed.

Besides the many experiments on crosses and effects of chromosome combinations Randolph and Hand published on the relation between carotinoid content and number of genes per cell in diploid and tetraploid corn. Omara gave a method for determining the effects of individual *Secale* chromosomes on *Triticum,* and Livermore showed the effect of chromosome doubling on crossability of certain species of *Solanum.*

Pfeiffer produced crosses in the genus *Lilium,* Miller and Mikell studied linkage in tomato, and Peterson discussed the inheritance of resistance of wheat to stem rust.

PALEOBOTANY

Arnold continued studies of Devonian floras of eastern America, Andrews worked on the ferns of the Frontier formation of Wyoming, Wilson studied microfossils of the Lower Mercer Coal of Ohio, and Penny reported on Upper Cretaceous Wood from Delaware. Axelrod reviewed the Late Tertiary floras of the Great Basin and Pliocene Esmeralda flora of Nevada. Berry made additions to Pensauken flora, Cribbs gave the structure of a fossil stem of pityean affinity from Reed Springs formation of Missouri, and Darrah presented the fossil flora of Iowa coal balls. Young published on Gallatin petrified forests and Brown listed new species and changes of name in some American fossil floras.

PHYSIOLOGY

The subject of auxins and growth hormones was again prominent in physiological research. Bonner continued research with a paper on the specificity of nicotinic acid as a growth factor for isolated pea roots, while Robbins studied the response of excised tomato roots to B-alanine, and English Bonner and Haaginsmit isolated a crystalline active substance while studying wound hormones. Robbins also concluded that growth substances in addition to thiamin are concerned in gametic reproduction of *Phycomyces,* and Leonian and Lilly found auxithals synthesized by certain filamentous fungi. Link and Eggers made assays of ether extracts of nodules and roots of various legumes. Overbeek found auxin production in isolated pea roots growing in vitro as well as in red and brown algae growing near Friday Harbor. Hitchcock and Zimmerman reported on effects obtained with root-inducing substances and induced adventitious shoots and roots in *Althea* with natural and synthetic growth substances. Lindner studied factors affecting regeneration of horse radish roots. Traub, Cooper and Reece induced flowering in the pineapple by treating with ethylene, and Winklepleck reported the effectiveness of certain hormones in delaying blossoming of *Prunus*. Mitchell studied the effect of napthalene acetic acid and napthalene acetamid on nitrogenous and carbohydrate constituents of bean plants. Avery, Creighton, and Schalucha discussed extraction methods in relation to hormone content of maize endosperms, and Stewart and Went studied light stability of the auxin in *Avena* coleoptiles.

Leonian and Lilly studied various factors influencing the growth of thiamin-requiring fungi. Cox experimented with vitamin B_1 as a growth stimulant. Robbins and Schmidt used vitamin B_6 as a growth substance for excised tomato roots. Dennison found that ribaflavin increased the growth of egg plant and ascorbic acid increased the growth of tobacco.

Continuing further into the subject of vitamins, hormones and their influence on growth, Bonner and Bonner discussed the effects of adenine and uric acid on cosmos and mustard plants when grown in sand cultures. Pratt reported on the influence of size of inoculum on the growth of *Chlorella vulgaris* in freshly prepared culture media as well as presenting further evidence to show that *Chlorella* cells form a growth-inhibiting substance. Pratt and Albaum investigated the influence of preliminary soaking on early growth and auxin content of sorghum.

Robbins found that extracts of *Phycomyces* favored certain phases of its development and noted that appreciable quantities of biotin and traces of thiamin were present in Difco agar. Robbins and Hamner showed that potato extracts had a favorable effect on growth of *Phycomyces*. Haas studied the relation of pH to growth in citrus and found that best growth was obtained in acid solutions. Wort investigated vernalization. Weinmann carried on research of the storage of root reserves in Rhodes grass, and McKinney reviewed the literature dealing with temperature, daily photoperiod, and other factors influencing development and sexual reproduction in certain annuals.

The researches in nutrition involved the study of the so-called micro-elements and the mutual influence of elements upon each other. Albrecht and Smith found that calcium and phosphorus had a reciprocally beneficial effect in moving each other in certain grasses and legumes while Drake and Scarseth reported on the abilities of plants to absorb potassium and the effects of different levels of potassium on absorption of calcium and magnesium. Helgeson, Hooper and Taylor published on mineral nutrition of Bison flax. Hoogland and Broyer showed the effect of Hydrogen ion on the accumulation of salt by barley roots as influenced by metabolism. Gauch investigated the response of bean plants to calcium deficiency. Minarick and Shive studied the effect of boron on calcium accumulation by soybeans while Hamner studied the growth response of soybeans to varying concentrations of phosphate and nitrate in nutrient solutions.

Purvis reviewed the present status of boron in American agriculture, Eaton gave the effects of boron deficiency and excess on sunflower and soybeans, and Eaton showed the effects of boron and indolacetic acid on plant growth, while Steinberg studied the relation of carbon nutrition to trace-element and accessory requirements of *Aspergillus*.

Research was continued into the problem of carbohydrate storage and metabolism. Day found a correlation between the amount of potassium and the capacity of tobacco to store starch. Beckenbach, Robbins and Shive gave a statistical interpretation of the relation between nutrient ion concentration and carbohydrate and nitrogenous content of corn tissues, while Wall studied nitrogen and carbohydrate metabolism in potassium deficient plants supplied with nitrate or ammonium nitrogen.

Although work in auxins, vitamins, and nutrients held the spotlight, work continued in the fields of absorption, respiration, photosynthesis, etc. Kramer sought to find the causes of decreased absorption of water by plants in poorly aerated cultures. Brauner and Brauner studied the influence of light upon water intake and output of living cells. Schroeder investigated the effect of root temperature upon water absorption by the cucumber. Kramer presented root resistance as a cause of decreased water absorption at low temperatures.

Bailey reported on the respiration of cereal grains and flaxseed. Steward observed the metabolic processes of potato discs under conditions conducive to salt accumulation. Anderson measured the internal temperatures of cotton bolls, and du Buy carried on work on the nutrition, respiration and protoplasmic streaming of the coleoptile of oats.

Greenfield worked on inhibition of photosynthesis in *Chlorella* by means of minor elements. French and McAlister reported on the relation of the fluorescence of chlorophyll to photosynthesis, and Gaffron gave the present status of photosynthesis.

With investigations in photoperiodism coming more and more to the fore, Arthur and Harville showed the effect of intermittent light on the flowering of gladiolus and carnation. Skinner gave evidence that temperature and length of day affected shoot growth and flower bud formation in rhodendron and azalea. Knott listed the effects of nitrate of soda on response of spinach to length of day.

In the field of radiation studies, Naylor mentioned the effects of x-rays and radium upon regeneration of *Bryophyllum*. Buchwald and Wheldon reported on stimulation of growth in *Aspergillus* with low velocity cathode rays. Henshaw and Francis conducted x-ray studies with seedlings of *Triticum* and *Lycopersicum*.

More work is being continued along the line of that of Biddulph who followed the absorption and movement of radio-phosphorus in bean seedlings.

TAXONOMY

Space does not permit the recounting of the varied work carried on in taxonomy, which ranged from the description of new species and revision of genera and monographing of families to more general keys and check lists for various areas of the country.

Taxonomic research was carried on in the following families: Palmaceae (Bailey); Boraginaceae (Johnston); Crassulaceae (Clausen); Salicaceae (Ball); Icacinaceae (Howard); and Celastraceae (Lundell). The following are a few of the many genera studied: *Silene* and *Robinia* (Clausen); *Asclepias* (Harper); *Chlorogalum* (Hoover); *Orthocarpus, Haplopappus, Penstemon* (Keck); *Lupinus* (Smith); *Virburnum* (Svensen); *Brassica* (Bailey); *Vaccinum* (Camp); *Ellisia* (Constance); *Salvia* (Epling); *Ceonothus* (Howell); *Selenia* (Martin); *Scirpus* (Beetle); *Castilleja* (Eastwood); *Desmodium* (Schubert); *Arctostaphylos* (Adams); *Lycopersicon* (Muller); *Hedysarum* (Rollins); *Euphrasia* (Callens); *Monolopia* (Crum); *Aster* (Flowers); *Solidago* (Friesner); and *Dichelostemma* (Hoover). New species were described in widely separated families.

Those working among the algae were Lackey (flagellates); Prescott (desmids); Patrick (diatoms); Philson (*Oedogonium*); Taylor (marine algae); and Taft (algae of Oklahoma).

Those doing work on the fungi were Cummins (Uredinales of New Guiana); Martin (spore formation in *Matula*); Miller and Thompson (Georgia Phycomycetes); Murrill (additions to Florida fungi); Routien (two new Gasteromycetes); Limber (a new form genus of Moni liaceae); Remsberg (studies in the genus *Typhula*); Barnhart (Ustilaginales); Hoerner (nomenclatorial note on *Pseudoperonospora*); Thom (naming molds); Anderson (Alaskan rust fungi); Prince and Steinmetz (Gymnosporangium rusts in Maine); Smith (studies in genus *Agaricus*) and Snyder and Hansen (species concept in *Fusarium*).

The taxonomy of lichens was carried forward by Lowe, Nearing, Johnson, Allard, Herre, Dix, Hedrick, and Wolfe.

Research in the Bryophytes was done by Ammons, Drew, Steere, Brinkman, Clark, Grout, Schnooberger, Schornherst, Bartram, Blomquist, and Thompson.

Among those interested in the Pteridophytes were Clausen, Lewis, Meyer, Spurr, Clute, Howell, Wolf, Bloomquist, Gruber, Moore, Parks, Scully, Tracy, Tryon, Friesner, La Motte, Matthews, and Thompson.

ECOLOGY

The influence of conservation is seen in the work of Weaver and Albertson on the deterioration of midwestern ranges and in that of Weaver, Robertson, and Fowler on changes in Prairie vegetation during drought. Smith studied the effect of overgrazing and erosion upon mixed-grass prairie in Oklahoma while Clark measured the interception of rainfall by prairie grasses, weeds, and crop plants.

A continuation of the investigations in paleoecology were made by Hansen who analyzed two peat bogs in southeastern British Columbia and Cain who studied the fossil pollen of *Pinus*. Fuller used pollen analysis in studying interglacial and postglacial vegetation in Illinois while Hansen and Mackin worked on interglacial peat from Washington.

Successional studies were made by Judd in Montana and by Chapman in New England salt marshes. McQuilkin wrote of the establishment of pine in the Piedmont Plateau. Muller studied succession in a *Larrea-Flourensia* climax. Daubenmire observed succession due to overgrazing in bunchgrass prairie of southeastern Washington. Gemmer, Maki, and Chapman studied longleaf pine regeneration in Mississippi, and Judd noted natural successions on abandoned farmlands of Montana.

Descriptive studies were made by Braun who made a transect of Black Mountain, Kentucky; Egler studied the Berkshire plateau in Massachusetts; Shantz and Piemeisel made observations on the vegetation of Escalante Valley, Utah; Penfound and Howard analyzed an evergreen oak forest in Louisiana; Kenoyer was concerned with certain associations in Michigan; Carr made notes on the floral elements of bogs in Virginia; and Jennison reported on the flora of the Great Smokies.

Experimental ecology was advanced by Livingston and Le Compte who measured moisture fluctuations under lawns and by Haynes who calculated the moisture under a vegetative canopy of crops. Harley studied the root systems of beech, and Davis and Pallesen found the effect of rainfall and evaporation on wheat. Thornwaite was concerned with moisture and its relation to ecological problems. Tharp and Mueller gave a method for excavating root systems.

PATHOLOGY

The work in pathology has become varied and widespread with many workers in the field. Only a brief attempt is made here to summarize the type of work being done and the names of those carrying out investigations.

The subject of strains within fungal parasites has been carried on by Alexander, Hildebrand, Hoffmaster, Kingsolver, Murphy, and Tervet. Descriptive studies of diseases and causal organisms were attacked by Ark, Harrar, Marthland, Harris, Howard, Imle, Johnson, Rodenhiser, Le Fefebre, Laskaris, Person, Walter, and Mook. Pathenogenicity, host resistance, and susceptibility were investigated by Clayton, Foster, Decker, Dickson, Bowman, and Young. The problems included in the nature, transmission, and effects of viruses caught the attention of Bennett, Black, Dufrenoy, Frampton, Hansing, Hedges, Hildebrand, Palmiter, Hutchins, Cochran, Johnson, Fulton, Keit, Larson, Walker, Ross, Stanley, Samson, Spencer, and Wallace. Minerals and other environmental factors as related to disease were investigated by Burnell, Lewis, Felix, Hanson, Tervet, Hartman, and Sampson. Seriological analyses were made by Cumley and Goldsmith, and Duggar and Riker were concerned with radiation effects. Spray programs and disease control measures were advanced by Cook, Nugent, Hamilton, Weaver, Henderson, Wingard, Butler, Heuber, Horsfall, Clayton, and many others. Diachun, Hansen, and Christensen reported on disease transmission while effects of organic materials on pathogens were reported by Ark, Hillegas, Kavanaugh, Jenkins, Link, Eggers, and Seminiuk. Isolations were performed by Armstrong, Atkinson, Fenner, Pirone, Plakidas, Schaal, Tilford, and Runnels while host relations were studied by Dufrenoy, Edgerton, and Ullstrup.

ECONOMIC BOTANY

By H. K. Hayes

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THE NOMENCLATURE OF CULTIVATED PLANTS

The naming of cultivated plants is of importance to students of economic botany although as a rule with crop plants the grower is interested in the individual generation or variety rather than the species. Stout (*Amer. Jour. Bot. 27:* 339-347, 1940) emphasizes the statement, "The species name is not the exclusive name of any one individual or generation," to clear up an incorrect statement in a widely distributed book on garden plants that implied the binomial name of a species corresponded rather exactly with the name of an individual as John or Mary Jones.

Rules of plant nomenclature are reviewed and four classes or categories of cultivated plants are considered to be most important. These are (1) species, (2) varieties, (3) cultivars, and (4) clones. The first three of these may be reproduced by seeds while the fourth class, if propagated only by a sexual means and if containing an important new character, may be protected by plant patents.

The binomial name of the species, such as *Populus tacamahacca,* expresses two relationships. The generic name, *Populus,* indicates that members of this group possess certain fundamental botanical characters possessed also by other species of the Populus genus. The name, *tacamahacca,* indicates successive generations of individuals which possess botanical characters that make it a natural botanical unit and that distinguish the group from other species of Populus. The variety is a subordinate unit within the species. The cultivar is a subordinate group of importance primarily to growers of cultivated plants. The differences in many cases are of a horticultural nature rather than botanical. Fancy or vernacular names are used. The vernacular name, as Rosy Morn Petunia, may be printed in distinguishing type. The clone, reproduced asexually, makes it possible to propagate a heterozygous form without great genetic change of its characters. Stout has suggested the printing of the name of the clone by a distinguishing typography illustrated by the name, Mikado Daylily, printed in a heavy dark type.

NATURAL SUCCESSION OF VEGETATION ON ABANDONED FARM LANDS

Judd (*Amer. Soc. Agron. 32:* 330-336, 1940) studied natural revegetation of abandoned farm lands in Teton County, Montana. The first stage which predominated on fields abandoned for from one to three or more years was the annual weed stage. The principal species which constituted this stage were *Grindelia squarrosa, Helianthus* spp., *Lygodesmia juncea, Salsola pestifer, Sisymbrium altissimum* and *Setaria viridis.* The second or mixed annual-perennial stage occurs on fields abandoned for from two to four or more years. Here the species that predominate in the first stage begin to disappear. Such grasses as *Agropyron smithii, Stipa comata, S. viridula, Sitanion hystrix* and *Aristida pupurea* become of importance in the latter part of this stage. Perennial forbs, including *Gutierrezia sarothrae, Liatris* sp., *Potentilla* sp., *Rosa* sp. *Sphaeralcea coccinea* and *Artemesia frigida* are prominent. In the third or perennial stage occurring on fields abandoned from three to eight or more years the various grasses are beginning to exert dominance. The fourth stage is dominated by the perennial climax grasses which occur on fields abandoned from eight to 12 or more years. The climax grass species comprising this stage are *Stipa comata, S. viridula, Agropyron smithii, A. spiculatum* and *Koeleria cristata.*

RESPONSE OF PLANTS TO LENGTH OF DAY

Studies of different light periods in their effects on flowering were initiated by Garner and Allard several years ago. A recent publication by Allard and Garner (*U.S. Dept. of Agr. Tech. Bul.* 727, 1940) gives further results for a rather large number of wild and cultivated plants that are of value to the gardener, horticulturist, and plant breeder.

Short-day plants are those in which flowering is initiated under a relatively short-day length and appropriate increases in length of illumination cause flowering to be delayed or less profuse, while long-day plants are those in which flowering is initiated by exposure to a given, usually long-day length and decreased or delayed flowering results from a shortening of day length.

Some plants flower with more or less equal readiness under all light periods, and these are placed in an indeterminate group. A fourth group consists of plants in which flowering is initiated by a day length of medium duration but is inhibited by a day length above or below this medium. This group, with but few representatives, are designated as intermediates.

The bulletin emphasizes the importance of a knowledge of the length of day requirements of many horticultural plants and shows how such knowledge enables the grower to best utilize various species. It furnishes a method of learning under what conditions a particular species should be grown. Plants belonging to different groups can be forced into flowering at the same time, by proper adjustment of the length-of-day, making it possible for the breeder to make appropriate crosses between plants belonging to different day-length groups.

The effects of different lengths of day on flowering, plant height, and other characters are given in detail for named varieties of many horticultural plants including chrysanthemum, calendula, cosmos, dahlia, gallardia, marigolds, zinnias, ageratum, wild and ornamental varieties of many species of Compositae, and species of grasses and legumes.

SOMATOPLASTIC STERILITY

Collapse of fertilized ovules in alfalfa after self fertilization described by Cooper and Brink (*Jour. Agr. Res. 60:* 453-472, 1940) and similar behavior in wide crosses between different species and genera (*Genetics 25:* 593-617, 1940) has been called somatoplastic sterility. Such sterility is a rather common phenomenon in both cultivated and wild forms of plants. It is of considerable interest that the development of tissues in the endosperm, embryo, nucellus, and inner integument prior to final collapse of the fertilized ovules show a marked similarity in selfed alfalfa and in wide crosses. In the development of seed to maturity after fertilization the endosperm plays a dominant role. The rate of endosperm development in selfed alfalfa and in wide crosses is slower than in cases where the seed matures. The nucellus and inner integument develop abnormally preventing normal food supply from reaching the endosperm.

RESISTANCE TO HESSIAN FLY INJURY

Marquillo spring wheat has proven rather highly resistant to Hessian fly in Kansas by Painter and others (*Kansas Agr. Exp. Sta. Tech. Bul.* 49, 1940). The principal reason for this resistance is the low larval survival after the larvae reach the feeding position. There are two other causes of the resistance of Marquillo —low oviposition under some conditions and tolerance or ability to withstand infestation. Each of the three appears to be the result of separate genetic factors.

Selections from crosses of Marquillo with winter wheat varieties that are adapted to Kansas have proven resistant to Hessian fly in experimental trials both in the hard and soft wheat belts. Some of these selections combine resistance to insects, plant diseases, and have desirable agronomic qualities also.

DORMANCY IN WHEAT AND BARLEY AND ITS ECONOMIC SIGNIFICANCE

Harrington and Knowles (*Sci. Agr. 20:* 355-364 and 402-413, 1940) have called attention to the importance of dormancy in wheat and barley as a means of controlling a part of the injury from sprouting of mature grain before harvest and in the shock after harvest. Their first research studies of dormancy were made by germinating seeds of different varieties starting at the time of harvest and after this at intervals of 4, 8, 12, 16, 21, 26 and 36 days after maturity. Germination counts were made at 2, 4, 6 and 30 days after establishing a test. The dormancy was determined by ranking the varieties in the order of resistance to germination.

In their second study with wheat alone, a few days of rainy weather caused the germination of ripe wheat standing in the field nurseries in September 1938. The extent of sprouting was studied for 17 varieties and 157 purified lines of wheat from four crosses.

Several varieties of wheat showing wide differences in dormancy were grown also in the tests for resistance to sprouting. In general, varieties with long dormancy period were highly resistant to sprouting and *vice versa.* The writers emphasize the desirability of selecting varieties of wheat and barley for commercial growing that have a dormancy period after harvest as these varieties have proven rather resistant to sprouting under moist weather conditions after maturity. The tests of dormancy can be made easily by appropriate germination studied at maturity.

RESISTANCE TO STEM RUST IN SPRING WHEAT

Two types of resistance in wheat to black stem rust are known. Physiological resistance in the seedling stages to a particular race or races of rust. This type of resistance is a means of differentiating physiological races. A variety resistant in the seedling stages is resistant also to the same physiologic race of rust in the mature plant stages. The same variety of wheat may be highly resistant in the seedling stages to one race, however, and entirely susceptible to another. Mature plant resistance under field conditions from heading to maturity is the second main type of resistance. With spring wheat in United States and Canada the period from heading to maturity is the time of normal injury from stem rust. Certain varieties are known, two of these being Hope and H44, that are highly resistant in the spring wheat area in the mature plant stages to all physiological races of rust, both being susceptible to many physiological races in the seedling stage. As neither Hope or H44 are desirable bread wheats, they have been used extensively as parents in crosses with desirable varieties. As the mature plant resistance of Hope and H44 is inherited in a simple Mendelian manner, large numbers of hybrids with the desired stem rust resistance have been obtained but many of these are susceptible to heat and drought, characters obtained from either Hope or H44.

Studies by Peterson and others of

new types of stem rust resistance are of interest for both Hope and H44 have been severely injured by stem rust in South America. A brief report (*Science N.S. 91:* p. 313, 1940) describes six varieties of bread wheat that appear to have resistance in all stages of growth to all physiological races of stem rust. One of these, McMurachy's Selection, discovered in a field of Garnet wheat in 1930 near Strathclair, Manitoba, proved resistant to 20 physiological races in the seedling stage in the greenhouse and to a collection of approximately 30 races in the mature plant stages in the field. Five other wheats introduced from Australia, known as Kenya wheats, have also proven resistant in both the seedling and mature plant stages to a collection of rust forms.

A recent report by Peterson and Love (*Sci. Agric. 20:* 608-623, 1940) reviews previous studies and describes an apparently successful attempt to produce several strains of bread wheat resistant in both the seedling and mature plant stages to all physiological races of stem rust. Crosses were made between Iumillo, *T. durum,* a 14n chromosome wheat with six varieties of *T. vulgare,* belonging to the 21n chromosome group. Over 18,000 plants were grown in F_2, and selection continued under severe rust epidemic conditions for resistance to stem rust and for vulgare characters. Fifty rust resistant lines were selected that bred true for rust resistance in 1936, 48 of these resembling vulgare wheats and two being of durum type. These 50 lines were studied also in their reaction to nine physiological races, 17 of the 50 proving resistant or immune to all nine races, while 33 were susceptible or intermediate to one or more races but resistant to others. Studies of chromosome numbers showed somewhat greater variability from these wide crosses than for varieties of *T. vulgare* but indicated that it would be possible to select uniform varieties with 21n chromosomes with either physiologic resistance to many and perhaps all races of rust or mature plant resistance to all races.

HYBRID CORN

Acreage.—It is generally agreed that one of the most significant developments in crop improvement of the present century is the rapid increase of hybrid corn throughout the corn belt. According to the Agricultural Marketing Service of the U.S. Department of Agriculture, the acreage of hybrid corn in the Corn Belt states in 1936 was very small. In 1938, however, approximately 12,000,000 acres of hybrid corn were grown, 21,000,000 acres in 1939 and 25,000,000 acres in 1940, or slightly more than half of the total acreage in the corn belt was planted to hybrid in 1940. The percentage of hybrid in important corn growing states in 1940 was estimated as follows: Iowa 88, Illinois 77, Indiana 66, Ohio 57, Minnesota 54, Wisconsin 51, Missouri 28, and Nebraska 23.

Selection.—Nearly all states in the Corn Belt have extensive yield trials of commercial and experiment station hybrids. The tests usually are under the supervision of the state agricultural experiment station and agricultural extension division although a part of the cost of the trials is paid for by commercial seed companies. By studying the reports that appear each year from the various state agricultural experiment stations a farmer can select the hybrid best adapted to his own locality.

Resistance to Heat and Drought.—In 1936 when drought was severe in Kansas, inbred strains of corn were classified into three groups—resistant, intermediate and susceptible to drought. Heyne and Laude (*Jour. Amer. Soc. Agron. 32:* 116-126, 1940) tested a group of these same inbreds and crosses between them when the plants were 10 to 14 days old in a room where the temperature and humidity were controlled artificially. The plants were subjected to temperatures of 130° F. and relative humidity of 25 to 27% for five hours and after an appropriate period were classified for heat injury.

There was a good correlation between drought resistance in 1936 in the nursery and injury from heat in the artificial trials which indicated that selection for drought resistance could be made under controlled conditions.

Heyne and Brunson (*Jour. Amer. Soc. Agron. 32:* 803-814, 1940) attempted to determine the genetic linkages of factors for heat and drought tolerance by crosses between five drought-resistant inbred lines with genetic testers for each of the 10 chromosome groups of corn. Close associations of reaction to heat were found for the Pr pr factor pair in chromosome 5 that in the presence of the red aleurone factors leads to the production of purple aleurone. This indicates that a gene for drought resistance is carried in chromosome 5. The genes for glossy seedling, gl_1 and gl_2, apparently protect the corn seedlings from injury by artificial heat while the gene for sweet corn, su, appears to be directly responsible for heat injury.

Heyne and Brunson also made crosses between inbreds classified for resistance to drought into two groups —resistant and susceptible. The injury from controlled temperatures for the five inbreds and crosses between them was studied. Two inbreds classified as resistant and the cross between them were highly resistant to high temperatures. Crosses between susceptible inbreds were highly susceptible to heat while crosses between resistant and susceptible inbreds were somewhat less resistant to heat than their resistant parent.

Resistance to the Leaf Aphid.—The leaf aphid, *Aphis maidis* Fitch, often attacks the tassel of susceptible corn strains and prevents pollen shedding from severely infested plants. It may be a serious problem in relation to the increase of inbred stocks that are used in double crosses, particularly if the inbred is highly susceptible. Snelling, Blanchard, and Bigger (*Jour. Amer. Soc. Agron. 32:* 371-381, 1940) make a rather complete review of literature relating to the resistance of crop plants to aphis attack and present data from inbred lines of corn and crosses between them to show that resistance to aphis injury is a heritable character. This furnishes another illustration of the growing importance in crop plants of resistance to insect infestations as one means of insect control.

Hereditary Variation in Plant Nutrition.—Inbred lines of corn and single crosses between them were grown by Harvey (*Genetics 24:* 437-461, 1939) in aqueous mineral solutions supplied with various nitrogen forms. He demonstrated differential responses within strains and within the crosses to ammonium and nitrate nitrogen. Some strains and hybrids made more growth on ammonium nitrogen in comparison with nitrate nitrogen than did others. Efficient utilization of ammonium nitrogen was inherited as a partial dominant in crosses.

Tomato strains were grown on low N, low P, and minus K solutions and compared with their growth on full nutrient solution. The strains reacted differently, some making more satisfactory growth in solutions of nutritional deficiency than others. The differential response of tomato strains to full and minus potassium levels was inherited in crosses between strains that showed a differential response. These studies indicate that it may be possible to breed varieties of corn and other crop plants for different levels of soil fertility.

Breeding Methods in Control of Heredity.—The methods of corn breeding now available make it possible to isolate inbred lines and hybrids that differ widely in reaction to diseases and insects, to heat, and to drought. They make possible also the selection of hybrids that excel in vigor of growth, ability to withstand lodging, yielding ability as well as hybrids that are adapted to different levels of plant nutrition. The extent to which these methods of breeding can be adapted to other cross-pollinated plants has not yet been determined.

XXII. BIOLOGY

PERIODICAL PUBLICATIONS

American Botanist
5257 Hinesley Ave., Indianapolis, Ind.
American Journal of Botany
Botanical Society of America, 1086 N. Broadway, Yonkers, N.Y.
American Naturalist
3941 Grand Central Terminal, New York City.
Annals of the Entomological Society of America
Ohio State University, Columbus, O.
Botanical Gazette
5750 Ellis Ave., Chicago.
Botanical Review
Botanical Garden, New York City.
Ecology
1000 Washington Ave., Brooklyn, New York City.
Journal of Economic Entomology
George Banta Publishing Co., Menasha, Wis.
Journal of Experimental Zoology
36th Street and Woodland Ave., Philadelphia.
Journal of Mammalogy
American Museum of Natural History, New York City.
Journal of Morphology
36th Street and Woodland Ave., Philadelphia.
National Horticultural Magazine
American Horticultural Society, Washington, D.C.
Quarterly Review of Biology
Mount Royal and Guilford Aves., Baltimore, Md.
Scientific American
24 West 40th Street, New York City.
Yale Journal of Biology and Medicine
New Haven, Conn.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

Academy of National Sciences of Philadelphia, Logan Sq., Philadelphia, Pa.
American Assn. of Economic Entomologists, Amherst, Mass.
American Assn. of Museums, Smithsonian Institution, Washington, D.C.
American Microscopical Society, Kansas State Agricultural College, Manhattan, Kan.
American Museum of Natural History, Central Park W. and 79th St., New York City.
American Nature Assn., 1214 Sixteenth St., Washington, D.C.
American Nature Study Society, 5540 Pershing Ave., St. Louis, Mo.
American Ornithologists' Union, Ohio State University, Columbus, Ohio.
American Phytopathological Society, Bureau of Plant Industry, Washington, D.C.
American Society of Naturalists, Brown University, Providence, R.I.
American Society of Zoologists, Princeton University, Princeton, N.J.
Boston Society of Natural History, 234 Berkeley St., Boston, Mass.
Botanical Society of America, Connecticut College, New London, Conn.
Entomological Society of America, (Clarence H. Kennedy, Editor), Columbus, Ohio.
Eugenics Research Association, Cold Spring Harbor, New York.
Field Museum of National History, Roosevelt Road and Lake Michigan, Chicago, Ill.

Museum of the Comparative Zoology, Cambridge, Mass.

National Assn. of Audubon Societies, 1775 Broadway, New York City.

New York Microscopical Society, American Museum of Natural History, New York City.

New York Zoological Society, 90 Broad St., New York City.

Paleontological Society of America, American Museum of Natural History, New York City.

Reptile Study Society of America, Inc., 536 E. 84th St., New York City.

United States National Museum, Tenth and Constitution Ave., Washington, D.C.

DIVISION XXIII
MEDICAL SCIENCES

MEDICINE, PATHOLOGY AND PHYSIOLOGY

By Max Trubek
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GENERAL

During 1940 there was extension of our knowledge regarding the vitamins, particularly those of the B complex and of vitamin K. Disease entities and symptom complexes amenable to particular fractions of vitamin B are being progressively identified and successfully treated. The usefulness of chemotherapy has been enhanced by the introduction of new variations of the sulfonamid drugs resulting in greater effectiveness and diminished toxicity. Advances have also been made in the understanding and treatment of hypertension and of epilepsy. A distinctly new contribution has facilitated the x-ray visualization of the cardio vascular system. Knowledge of the value of human blood plasma has greatly extended a usefulness previously limited to whole blood transfusions and new methods of preservation have facilitated storage and shipping of this invaluable substance. A new approach in the more effective treatment of early syphilis with a recently introduced drug may prove to be a valuable addition in the armamentarium for combatting the spread of this illness. Progress in the study and treatment of diseases caused by the viruses was also notable during the year.

THE VITAMINS

Vitamin K deficiency is characterized by a low prothrombin value in the blood and, because of this, an increased tendency to bleed. Concentrates obtained from putrefied fish meal and from alfalfa contain effective amounts of this vitamin. Chemical compounds closely related to those naturally occurring vitamins have been made available. The isolation and synthesis of vitamin K was accomplished during 1939 by various groups of workers in this country and some of the derivatives have great potency and rapid action by direct injection into the blood stream where such a deficiency exists. Prothrombin values can now be quickly ascertained so that the effectiveness of such therapy can be accurately evaluated. The need for treatment usually arises in a patient with biliary tract disease either before or after surgical procedures. Usually when the bleeding ceases after the prothrombin value has been reestablished to normal then the naturally occurring vitamin K concentrates are administered by mouth together with bile salts when it is possible. The chemical substance is 2-methyl-1, 4-naphthoquinone and has been proven to be of great value because of its rapid action after intravenous administration. It has been shown, however, that if damage to the liver is severe enough, the use of vitamin K is not effective in correcting this deficiency in prothrombin.

Vitamin B.—With the isolation and synthesis of new components of vitamin B there has resulted confusion and some contradiction as to just which illnesses are most benefited by one or the other of these chemical substances. The better known components and their usefulness can be summarized as follows: vitamin B (thiamine hydrochloride) was synthesized in 1936. Its greatest applicability has been in diseases characterized by a neuropathy (disease of peripheral nerves) such as occur in chronic alcoholic addiction, pellagra, pregnancy, and diabetes, and also in beri-beri which is a systematic disorder due to vitamin deficiency and may affect the circulatory system as well as the peripheral nerves. The administration of synthetic vitamin B to persons with beri-beri relieves the cardiovascular disturbances, induces improvement in response of the muscles innervated by affected peripheral and cranial nerves, and relieves the gastrointestinal dysfunction. In cases of subclinical thiamine deficiency it often increases the appetite, strength, and feeling of well being.

Nicotinic acid compounds have been found to relieve many of the symptoms of pellagra. Pellagra is a systemic disease which affects chiefly the alimentary tract, skin, and nervous system. Swelling and redness of the tongue is one of the earliest manifestations but later the entire intestinal tract may be involved by a similar process. Symmetrical brownish scaling skin lesions often appear, and severe mental disturbances such as apprehension, confusion, hallucinations, and delirium may usher in the advanced stage of the disease. Recognition of the early and prodromal symptoms and the administration of adequate amounts of nicotinic acid compounds will prevent the development of the full blown pellagra. Those familiar with the mental disturbances characterizing this disorder are often able to differentiate them from the mental disturbances occurring in senile states and chronic alcoholism, and an occasional patient seemingly having one of these disorders may actually be benefited by nicotinic acid because of the presence of a deficiency of this substance.

Riboflavin deficiency states have been described in man and include lesions at the corners of the mouth (cheilosis), erosions around the eyes, itching, burning, and excessive dryness of the eye, extreme redness and granulation of the conjunctiva of the lower lids, and a shark skin appearance of the skin over the nose. The administration of riboflavin is followed by disappearance of such lesions and an improved well being. In addition it increases the efficacy of nicotinic acid in the treatment of certain pellagrins.

Pyridoxin (vitamin B_6) was synthesized in 1938 and under the leadership of Dr. Spies studies were made to determine its value in human nutrition. It was found that treated patients with certain residual symptoms, who had not responded to thiamine chloride or nicotinic acid, completely recovered after the addition of this substance. On the basis of the beneficial effects of vitamin B_6 in relieving muscular weakness and rigidity an effort was made to determine its possible benefit in patients suffering with Parkinson's syndrome, a severe lingering disease characterized by tremor of the extremities, weakness, delay of voluntary motion, and muscular rigidity. Both Dr. Norman Jolliffe and Dr. Spies reported significant improvement so that these patients were able to walk without the usual stiffness. Dr. Jolliffe saw the greatest improvement in the non-post-encephalitic parkinsonism of fairly recent onset. These are preliminary studies and await repetition and confirmation by other workers.

Pantothenic acid, another vitamin B component, was synthesized during the year and made available for study. It has been shown to be present in reduced amounts in pellagra, beriberi, and riboflavin deficiency states. These observations suggest that pantothenic acid is also important in human nutrition. Other substances such as yeast adenylic acid have also been shown to enhance the effect of the better known fractions of the B complex when administered to persons suffering from one of the major B deficiency states.

Vitamin E.—For several years it was believed that vitamin E was concerned especially with reproduction. More recent studies have shown its relationship to the normal function of cross strated muscle. Muscular atrophy has been induced in animals after vitamin E deprivation and restoration ensued following the intromuscular injection of synthetic vitamin E, alphatocopherol. During past years Dr. Wechsler and Dr. Spies observed benefit by administration of this substance to some cases of amyotrophic lateral sclerosis. Very recently there has been reported specific benefit of this substance combined with vitamin B_6 in a case of arsenic polyneuritis not previously benefited by the administration of thiamine chloride (B_1). Clinical studies of its therapeutic value are still in the experimental stage.

CHEMOTHERAPY

Sulfanilamid Derivatives.—The successful application of sulfanilamid to certain infectious diseases has stimulated investigations of other derivatives of this chemical compound. At the present time there is considerable interest in the thiazol analogue of sulfapyridine known as sulfathiazol. It is more rapidly metabolized and undergoes less conjugation than sulfapyridine. It is absorbed more readily and excreted more rapidly and possesses much less toxicity than sulfapyridine. Its damaging effect upon the kidneys and blood forming organs is less, and there is much less gastric intolerance for this drug. This substance is at least equally as effective as sulfapyridine for nearly all of the variety of infections against which the latter has been found effective. It has been found more effective in the treatment of serious infections due to the staphlococcus. It does not, however, pass readily into the spinal fluid so the complications involving this system are more favorably influenced by the other drugs. The older drugs still have their usefulness and there still remain numerous types of infection against which the original drug is more effective than its newer derivatives. Infections due to the gonococcus, pneumococcus, colon bacillus, and staphlococcus are, however, much more yielding to the administration of the newer derivatives. None of these drugs has had any significant value in the treatment of the common cold, influenza, typhoid fever, active rheumatic fever, tuberculosis and some other less common diseases. Surgical procedures must always be carried out where accumulation of free pus complicates any of these infections and the risk of drug therapy is not justified in the treatment of simple boils and the ordinary sore throat. Patients receiving any of these drugs in considerable amounts must be under constant medical supervision for the detection of those toxic manifestations which may prove serious or fatal unless the drug is discontinued.

Treatments.—During the past year a number of reports have appeared in which certain hitherto fatal diseases have been successfully combatted by the use of one of these drugs. Meningitis due to the streptococcus had already been shown to be amenable to sulfanilamid; meningitis due to the pneumococcus and to the influenza bacillus have also been combatted in a much larger proportion of cases than at any time hertofore. The use of sera alone had been found only occasionally of value but combined with the use of sulfapyridine or sulfathiazol the number of cures has been greatly augmented. Patients suffering from bacterial endocarditis were on the whole more successfully treated during the year; cures were reported after the use of one or the other of these drugs, some with sulfanilamid, others by the use of one of the newer derivatives either alone or combined with injection of heparin solution or with the production of artificial fever. None of the methods were uniformly successful, but when a cure is attained in any individual case it marks an accomplishment not previously attainable.

Trachoma.—The derivatives of sulfanilamid have also been of value in the treatment of trachoma, especially in its acute stages. The rapidity with which certain of the acute inflammatory changes are brought under control and ulcers healed saves the patient from otherwise increased visual disability. From the public health point of view there results a decreased chance for the spread of the disease since trachoma is most contagious when there is the most discharge.

Erysipelas.—Series of patients receiving sulfanilamid were compared to similar cases in which this drug was withheld. It was found that the drug-treated patients returned to a normal temperature almost two days earlier than the controls, and their hospital stay was shortened by three days. Complications were twice as frequent in the controls as in the drug treated group and the mortality rate in the group receiving sulfanilamid was one-fourth that of the untreated group. Erysipelas is caused by a streptococcus hemolyticus, and theoretically this drug should have a remedial effect. Its usefulness in this illness exceeds that of any of the older methods of treatment including the use of antiserum and greatly simplifies the care of afflicted patients.

EPILEPSY

Epilepsy has been recently defined as a symptom of a disturbance in the electrochemical activity of the discharging cells of the brain and can be properly called a paroxysmal cerebral dysrhythmia. Significant advances in understanding the nature of epilepsy have emanated from study of electrical pulsations of the cerebral cortex as recorded by electro-encephalography. This method records normal electrical pulsation of the brain as varying from five to 100 millionths of a volt and consisting of Alpha waves of eight to 12 per second and Beta waves from 18 to 30 per second. Electrical rhythm of the brain seems to be a fundamental constitutional characteristic for each person.

From a study of electro-encephalograms, Gibbs, Gibbs, and Lennox have shown that each of the three types of epilepsy is characterized by a pathognomonic disturbance in electrical activity. Grand mal seizures are characterized by extreme acceleration of electrical activity, and the electro-encephalogram discloses brain waves as sharp spikes with a frequency up to 25 or 30 per second. Petit mal seizures are characterized by alteration of fast and slow activity with quick sharp spikes and slow rounded waves at a rate of about three per second. Psychomotor equivalent attacks are characterized by extreme slowing in electrical activity of the brain with a rhythm dropping to three or four changes in potential per second. Some authors stress the possible importance of subclinical attacks, recognizable only with the electro-encephalogram in contributing to the abnormal personality encountered in many epileptics. Cerebral dysrhythmia has also been demonstrated in individuals belonging to epileptic heredity groups who have never actually suffered from seizures.

Although the improvement in general physique and control of emotional states is important, physicians have had to rely upon anti-convulsant drugs, chiefly bromides and phenobarbital, in the control of this disorder. A newer and more effective drug, sodium diphenyl hydantoinate (dilatin sodium), has been shown to have great anti-convulsant effect in electrically produced convulsions in animals. This new drug has already had a fairly wide application, and most of the reports have been favorable except for the occasional occurrence of mild and also of fairly severe toxic reactions. Its use is sometimes combined with that of the older drugs so that only small doses need be employed and the danger thereby minimized.

HYPERTENSION

The experiments of Goldblatt and others who have shown that hypertension may be produced in dogs by partial constriction of the renal arteries by means of metal clamps have stimulated a more careful search for primary localized renal disease, particularly chronic pyelonephritis in human beings with so-called essential hypertension. Although in the majority of cases of hypertension no evidence for surgical intervention is found, still the associations of these conditions has been found frequently enough to warrant urological study in a great many cases. In an increasing number of patients with hypertension the discovery of a unilateral renal tumor, unilateral chronic pyelonephritis, hydronephrosis or localized renal artery obstruction have been followed by the return of normal blood pressure values after removal of the affected organs. It seems that not all patients with unilateral kidney diseases even of similar nature develop hypertension but our newer knowledge of the ultimate possibilities in many cases presenting renal infection emphasizes the need for the prevention of chronic renal infections either by chemotherapeutic methods or by timely urological intervention.

This method of approach to the treatment of hypertension is distinct from the so-called surgical treatment of hypertension when there is bilateral ischaemic renal disease of unknown cause and usually designated essential hypertension. In such instances where the disease is not too far advanced procedures have been devised for interference with the sympathetic nervous system so as to obtain vascular relaxation. Before this type of approach is considered all other causes for the hypertension must be ruled out including particularly cases fitting into the category above described. The simpler surgical approach of the variety of methods applicable has been the bilateral subdiaphragmatic splanchnicectomy and lower dorsal sympathetic ganglionectomy such as advocated and practiced by Dr. Max Peet. Complete and careful studies were made before and after surgery upon a large number of patients selected during the past seven years. Since this method of treatment had been widely disputed it is timely to evaluate its results in the hands of one group. Three hundred and fifty consecutive cases of hypertension so operated upon were studied by the Ann Arbor group.

In the majority of patients severe symptoms, intractable to ordinary medical management, were of equal importance to the elevated blood pressure in the decision to select surgical relief. Those included headache, nervousness, irritability, ease of fatigue, urinary frequency, dizziness, dyspnea, blurring of vision, nausea and vomiting, and even hemiplegia. The direct operative mortality was not high even considering the impaired health of many of these patients particularly as regards their cardiovascular systems. Over 80 per cent of the patients had post-operative relief of major symptoms, especially headache, and in half there was found a significant reduction in blood pressure. In many cases there was improvement in the eye ground changes, an important fact since visual impairment becomes a major complaint when the fundus changes are advanced. It was shown that many of the post operative benefits were not temporary and that the surgical method of treatment offered a better prognosis in cases of severe hypertension than other forms of therapy.

RENAL EXTRACTS IN HYPERTENSION

Recent evidence points to the kidney as the organ most frequently responsible for hypertension and has suggested that such hypertension is related to a disturbance in the formation of certain substances in the kidney and suggests that the normal kidneys elaborate some substance which has the property of inhibiting the blood pressure elevating effect of renin which presumably is elaborated in increased amounts by abnormal renal tissues. Experiments were planned to investigate whether extracts containing this antipressore substance would affect the blood pressure of animals with renal hypertension. It was found that dogs and rats with experimentally produced hypertension responded to properly prepared extracts with a decline in blood pressure. When adequate doses were administered either by mouth or by the intravenous route significant decline in blood pressure values were obtained, but only during the period of extract administration. Hypertension is a most serious disease in this country and any effective measure to lower the maintained blood pressure is desirable. There are many vaunted remedies for this disease and we know that remissions can often be obtained in certain benign varieties with the simplest procedures. Caution in selecting any particular therapeutic approach either medical or surgical is necessary and demands a broad understanding of the usual progress of the disorder based upon logic and experience in conformance with the findings as presented by the individual patient.

TREATMENT OF SYPHILIS

The spread of syphilis usually occurs during the early or infectious stages of the disease. At least six to 12 months of continuous treatment by the ordinary methods are usually required to render the disease permanently non-communicable. A method which would radically shorten this period and be safe, efficient, and not too costly would be of enormous significance in the control of syphilis. The intravenous drip method devised by Dr. Hyman at Mt. Sinai Hospital, New York was used to administer continuous doses of arsenicals in the treatment of early syphilis. In 1933 25 patients so treated were rechecked at the end of five years and the results found very satisfactory and in the opinion of New York Health Commissioner Rice warranted a consideration of a much larger study. Patients so treated at Mt. Sinai Hospital were checked by specialists at New York and Bellevue Hospitals. All patients were studied both as regards their serological tests as well as for possible organic damage by the large doses of arsenicals.

Ehrlich originally attempted to obtain total sterilization of infected tissues by the use of massive doses. This method was abandoned because of serious and even fatal toxic reactions; the divided dose method of treatment spread over a period of months or years has been the accepted procedure. The intravenous drip method provided that small continuous quantities of drug were introduced together with physiologic solutions of saline or glucose and the element of "speed shock" avoided. This method has the further advantage of protecting the community from infection by hospitalizing the patient during the period when he presents the greatest menace.

The drug originally used was neoarsphenamine, and the average duration of treatment was five days. There was a moderate number of toxic manifestations including fever, skin rashes, and polyneuritis, and occasionally hemorrhagic encephalitis. On the whole the results were considered good and were thought to equal the best results heretofore obtained by continuous treatment and having the advantages previously enumerated, particularly the time element.

The toxic reactions obtained after use of neoarsphenamine by this method have been minimized by the substitution of mepharsen in its place. This substance had been introduced as an antisyphilitic agent in 1934 and has been found to be effective and reasonably safe. It is a trivalent arsenical identical with arsenoxide and although known to Ehrlich in the course of his work he did not consider it as safe as his subsequent preparations. Its effective dosage is smaller than equivalent amounts of neoarsphenamine, but it is not completely without danger. Cases of hemorrhagic encephalitis (multiple punctate hemorrhages into the substance of the brain) have occurred because of its administration both by the intravenous drip method and by the use of frequent single dose injections which some investigators have tried in ambulatory patients. The use of this new method of massive dose therapy is being extended to cases of late syphilis, and the results here are also encouraging but too early to warrant general clinical application.

CARDIOVASCULAR VISUALIZATION

During the past few years Drs. Robb and Steinberg, working at Bellevue Hospital, have perfected a technique for the direct visualization of the blood vessels and of the heart, including each of its chambers. The conventional x-ray of the chest reveals the radio-opaque cardiac-aortic silhouette against the background of the luminous lung fields. Variations from the usual normal shadows are interpreted in the light of our knowledge obtained by post mortem correlation. Variation in the size or contour of the cardiac chambers can not always be accurately interpreted; frequently differences of opinion arise, and in many instances opinions which have been more or less generally accepted have been shown to be inaccurate by this new method. Likewise great difficulty may arise in differentiation of mediastinal masses from shadows of the aorta.

The new method requires accurate teamwork and technique. The circulation time from arm to lung and from arm to tongue are first determined by methods widely used. The radio-opaque substance (diodrast) is rapidly injected into the arm vein, and from the circulation times previously ascertained x-ray films are taken at the exactly correct moment so that the mass of opaque substance can be progressively visualized as it moves along with the blood stream. In this way the veins leading to the heart and the right heart chambers are first seen, later the left heart chambers and the aorta are directly visualized. Any structures outside of the cardiovascular tree can then be distinguished, whereas in the conventional x-ray overlapping shadows are frequently confusing. The method presents an unquestionably great advance in x-ray technique and distinctly contributes to increased accuracy in clinical interpretation.

MOVING PICTURES AND PHOTOGRAPHS OF THE FLUOROSCOPIC SCREEN

Recent improvements in fluoroscopic screens, photographic films and lenses have resulted in the production of roentgenological moving pictures of distinct value. Up to 16 pictures can be taken per second, and even the fast swallowing act has been recorded successfully.

The same improvements which allowed successful screen filming have made simple screen photography possible. Instead of using a large x-ray film one is able to photograph the screen images of a patient's chest on a small 35 mm. film and to study it directly or after magnification. This method perfected by Dr. Seth Hirsch of New York allows a great saving of material and minimizes storage space. It is a practical method in obtaining an x-ray survey of large groups of individuals.

STUDIES IN BLOOD PLASMA

From the ever increasing reports in the literature, it is becoming apparent that the therapeutic value of transfusion in the treatment of many diseases is derived largely from the plasma rather than from the red blood cells. This applies to the treatment of shock without hemorrhage, severe burns, restoration of plasma protein, and even in severe hemorrhage. Donors must be matched before transfusions, and if the blood is drawn from a "blood bank" it must also be of the correct type and not too old. When the proper technique for the preparation of plasma is used it can be administered with the simplicity of other parenteral fluids in any institution or in the home. Storage under widely varying conditions has not influenced its usefulness and transportation for long distances has become possible. The following precautions are to be observed to prepare a clear dilute blood plasma: fasting donors are used, the blood is stored for 24 hours, transferred to centrifuge bottles without shaking, refrigerated for 12 hours, the use of dextrose-saline as a diluent, and the addition of merthiolate as a preservative. With the use of properly prepared plasma almost no reactions are encountered, and it has particular value in military surgery.

The use of dried, powdered blood plasma, which can quickly be made ready by mixing with distilled water, may have even greater usefulness in military surgery because of its diminished bulk for transportation by auto or airplane. Dr. Max Strumia of Bryn Mawr has perfected a method of preparing large amounts of dried powdered blood plasma under sterile technique. All of the elements are unchanged except for loss of water which is added just before using to restore the initial volume.

REFRIGERATION IN CANCER

On the basis of the regressive effects observed in embryonal cells and of the establishment of apparently critical levels of temperature at which these changes occurred, an attempt was made to attain such "critical" temperature levels in the care of malignant tumors by the reduction of general body temperature. A group of cases was carefully studied by Dr. Lawrence Smith of Philadelphia. Only patients considered hopeless for other methods of treatment were accepted for these studies. The objectives were chiefly the relief of pain and the study of the effect of lowering of temperature upon cancer cell activity.

In one group of cases where the primary tumor was readily accessible local refrigeration was carried out at temperatures of 40 to 50 degrees F. Cancer of the breast, rectum, uterus, and mouth were among the types of growth in this category. This method was effective in causing significant regression of the tumor mass and of the cancer cells in each instance. In some of the patients death was caused by the already existing distant metastases; the original tumor cell in the area treated had in many of the patients actually disappeared. Actual freezing is not the desired purpose but the "critical" temperatures selected as the range in which cancer cells were most effectively injured. Relief of pain was also an important accomplishment of this method, and Dr. Smith believes that this procedure has already earned a place in our technique for treating cancer.

In attempting to influence widespread tumor metastases not approachable for local applications, a generalized refrigeration of patients at temperatures ranging from 75 to 90 degrees F. was instituted. Regressive phenomena were obtained in the subsequently studied tumor tissue, less striking but analogous to those attained by local cooling, but only after a prolonged period of lowered temperature. Not only were there microscopic evidences of tumor tissue death but not infrequently the size of the tumor masses became greatly reduced. The relief of pain was uniformly accomplished in the treated patients. Those beneficent effects may persist for weeks or months after this therapy. The method has proven fairly safe in experienced hands, there having been remarkably few instances of death hastened by the refrigeration; even pneumonia was uncommon except where the lung was already involved by the cancer process. The degree of improvement usually attained well outweighed the slight risk of the method.

SURGERY

By Frank L. Meleney

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GENERAL

Each year in this review of the progress of surgery it has been emphasized that it takes time to evaluate any new development or procedure. Such innovations generally start in a laboratory which has been working on a given problem over a period of years before its results are sufficiently clear to warrant their publication in a journal or their application to clinical cases. A period of time must be given for evaluation of this new method in the place of its origin and then it must be thoroughly checked and rechecked in other places. This usually requires a period of time lasting from five to ten years. Usually the hope aroused in the mind of the original investigator fails of fulfillment but occasionally a new method has a much wider application than is originally conceived. At times a discovery or an observation is made in some laboratory of pure science so-called, which seems to have no practical application, but when this observation is correlated with others its significance becomes apparent, and the practical application of it follows. This fact has occurred so frequently that both far-sighted industrial organizations and medical schools and universities foster research in pure science. At times the importance of these discoveries are not appreciated for many years but occasionally someone other than the original discoverer, out of his own experience, sees the significance of the discovery and carries it on to a practical conclusion. Advances have been made in all of the fields of surgery reviewed in The American Year Book for 1939 and mention will be made of those which seem at the present time most significant.

ANESTHESIA

Progress.—Steady progress is being made year by year in the field of anesthesia because more and more hospitals and medical schools are seriously studying the physiology of the respiratory mechanism and the pharmacology of drugs related to it. There is a greater appreciation of the indications and contra-indications for various forms of anesthesia and a greater knowledge of the safety factors and of the necessity for minimizing all of the dangerous features. This has resulted in a complication rather than a simplification of the technique of anesthesia. It is becoming more apparent each year that only those thoroughly trained in the art should be permitted to practice it.

Avertin continues to maintain and increase its popularity as a basal anasthetic and well merits its growing popularity not only because of its safety and ease of administration but because of the growing appreciation of patients from whom the terror of the induction period and the discomfort of the postoperative period have been largely removed. This fact not only makes the patient perfectly willing to subject himself to another experience of the same kind but is able to express to his friends who have to undergo the same experience his own piece of mind. Thus its reputation grows among the laity. Avertin is particularly applicable to the anesthetizing of highly nervous adults and children. It is, however, not complete in itself and must be supplemented by inhalation anesthesia. Further investigation should be carried out in order to provide an anesthetic which has all of the advantages of Avertin and yet will give complete surgical relaxation without the necessity for the addition of inhalation which carries with it dangers of its own.

Inhalation Anesthesia.—Further progress has been made in inhalation anesthesia through the development of the intratracheal method and the control of respiration which this gives. Its value, particularly in chest operations, is being more and more recognized and further search is being made for safer anesthetic agents. The dangers of explosion from the mixtures of the various gases which have to be used have still to be faced.

Spinal Anesthesia.—Methods of administering spinal anesthesia have steadily improved within the last 10 years, and during 1940 a great advance was made by the development of continuous spinal anesthesia. Instead of giving a large amount of the anesthetic all at once within a few seconds, a small amount is given through a needle which is left in place and connected with a tube and syringe through which small quantities may be given from time to time as the initial dose wears off. This method has been tried out in hundreds of cases with great success and a minimum of danger. The functions of the higher centers of the cord, particularly those of the respiratory and vaso-motor mechanisms, are not interfered with by this method and the favorable contraction of the intestine and the relaxation of the abdominal wall are satisfactorily obtained. Experience with this method is steadily growing and its value is being recognized wherever it is being used. Further laboratory and clinical observations, however, must be obtained before its limitations and indications are fully understood. Experience in knowing just when to make the added increments of injection in order to forestall the return of the sensation of pain must be obtained by its frequent use and can only come by prolonged experience. One distinct advantage lies in the fact that at the end of operation a large part of the anesthetic may be withdrawn. This hastens the return of motion of the anesthetized parts and minimizes any late effects on the higher centers.

Intravenous Anesthesia.—The use of Evipal and Pentothal Sodium have steadily increased during the year, not only for brief periods of anesthesia but for prolonged operations. Their safety has been thoroughly established and the dosage more clearly understood. The danger signs are well recognized and on the whole easily avoided. They are becoming increasingly useful in the brief anesthetics that are necessary for the treatment of accidental injuries and those associated with bombing raids. They are particularly applicable where complete relaxation is not essential, as in extremity injuries, such as bomb fragment lacerations and burns where debridement of the wound is necessary as a primary surgical procedure. While these injuries are often extensive the total period of operation is usually not prolonged. These drugs have also been used supplementary to spinal anesthesia to overcome the nauseating effects of the latter or to quiet apprehension or restlessness, or discomfort in the upper part of the body in the latter stages of a prolonged operation performed under spinal anesthesia. The probable increase of bombing accidents and of the need for treatment of war wounds near the front where inhalation or spinal anesthesia will have its difficulties, will give an increasing share of usefulness to these intravenous methods.

SURGERY OF THE LUNGS

The scope of lung surgery was gradually extended during the year. The diagnosis of tuberculosis and the nontuberculous forms of chronic inflammation are being made with more promptness and reliability than ever before. The care of these cases in public institutions has become the responsibility of the community, and experts have been trained in this important field of surgery. Furthermore, carcinoma of the lung, which in former years was diagnosed only when it was too late to permit a radical removal, has been diagnosed with increasing promptness, and technical measures developed for the safe and relatively rapid removal of one or more lobes or the complete lung. The tendency has been to subject these cases to early operation rather than to watch for developments over a period of months to confirm a diagnosis. At the same time safety measures were made available during the year to minimize the danger of infection which formerly has been one of the chief causes of a fatal outcome. These will be mentioned below under the heading of chemotherapy.

In tubercular processes the growing experience has made it possible to define more exactly the conditions in any given case which are likely to yield favorable results by surgical measures, and gradually the safety of the procedure is improving to such an extent by added experience that those cases formerly not amenable to surgery are successfully coming within its scope.

SURGERY OF THE HEART

Surgery is being called upon more and more to correct and overcome diseases of the heart, but progress in this field, except for the case of heart injuries, is exceedingly slow. Successful treatment of heart injuries depends upon the rapidity with which the patient is transported to the hospital and the surgical treatment begun.

Wounds of the heart which bleed out into the pericardium and smother the action of the heart must be promptly closed and the pericardium evacuated, if recovery is to take place.

In many hospitals which function in regions where stabbing or gun shot injuries are common, emergency operating teams are well organized and respond promptly to the calls made upon them, so that an operation often can be done within half an hour of the accident. Every quarter hour after this period the percentage of fatalities increases by geometrical progression.

Operations on the chronic diseases such as adhesive pericarditis or coronary sclerosis are gradually increasing in number, and results are increasingly gratifying. This is likewise true of cases of patent ductus arteriosus giving clinical symptoms.

Surgical attack on the interior of the heart is, however, still in its earliest stages of development. Occasionally it is possible to remove an embolus from the pulmonary artery but usually time is not given to accomplish this before the patient succumbs.

However, serious consideration is being given to surgical procedures on such completely incurable diseases as malignant endocarditis, and it is hoped that in the future some of these cases will be made amenable to surgery.

MINIMIZING THE RISK OF OPERATION

Hemorrhage.—The control of bleeding is one of the major time-consuming steps in any operation. It is the duty of the surgeon to minimize the loss of blood during an operation and to be aware of the possibilities of hemorrhage either before, during, or after the operation is over. Safeguards against the loss of blood must be inherent in any technique of operation but also in those cases in which there are bleeding tendencies because of the lack of clotting elements in the blood.

In some cases there is a bleeding tendency which causes a persistent oozing of blood from freshly cut surfaces and prevents the clotting of blood in cut or ligated blood vessels. This occurs in certain blood discrasias and certain diseases of the spleen. Recently it has been proven that another group bleeds because of the lack of Vitamin K. The lack of the vitamin is particularly frequent in cases with obstructive jaundice because bile is necessary for the absorption of Vitamin K from the intestinal tract. It is possible to restore the necessary element of clotting which is lacking in these cases by the administration of Vitamin K and bile salts by mouth or more rapidly by the intravenous injection of the synthetic Vitamin K. It has lately been shown that this vitamin may be absorbed from the skin by surface application. Further clinical use of this method must be carried out before its efficiency can be fully demonstrated.

Heparin.—In contra distinction to the measures used to avoid bleeding and to favor the clotting of blood, in certain cases the clotting of blood is a distinct menace to the well being of the patient. This is particularly true in postoperative phlebitis and in coronary thrombosis In such cases it is advantageous to have a method which will minimize the formation and propagation of the clot.

Heparin gives a means of prolonging the clotting time, but it must be given continuously and over a long period and must be continually checked by frequent determination of the clotting time of the blood. This treatment has, however, been a lifesaving measure in certain cases of coronary thrombosis and recently it has been utilized in cases of staphylococcus septicemia in which thrombosis of the blood vessels is a frequent and serious complication. Experience with this drug, however, is still very limited and a further report on it will be made in ensuing years.

Fluid, Electrolyte and Protein Bal-

ance.—During the past few years the importance of maintaining the fluid and electrolyte balance of patients both before, during, and after operation has been almost universally recognized and measures are generally taken to correct any discrepancies which may arise. But the organic elements of the blood, particularly the protein, are still major problems which have not been satisfactorily solved.

The protein of the blood is so complex that it can not be readily introduced into the blood stream except in the form of whole blood or plasma. Plasma was used with increasing satisfaction in shock during 1940. The maintaining of blood pressure and the normal permeability of the blood vessels depends in large measure upon the normal percentage of protein and the normal relation of the albumens and globulins. Any disturbance of the gastrointestinal tract which prevents the proper intake of the protein elements or their digestion or their later conjugation in the blood will upset this balance. Similarly, the presence of injured tissue or inflammation anywhere in the body will cause a pouring out of an exudate rich in protein which will deplete the rest of the body and the blood of this important element.

In many cases it is not possible to utilize the normal function of the gastrointestinal tract to restore this protein, and various methods have been advocated. These, however, have not proved to be efficacious, and considerable laboratory and clinical work must be done before this problem can be solved.

INTESTINAL OBSTRUCTION

The profound general disturbances and high mortality in cases of intestinal obstruction have been largely overcome by the intelligent use of the Miller-Abbott tube which can be introduced into the stomach, passed over into the duodenum, and then by inflating a balloon at the end of the tube rapidly carried down by peristaltic action to the point of obstruction. During the course of its passage it deflates the distended bowel, and when it reaches the obstruction the site and nature can often be determined by the fluoroscopic observation of a small amount of barium injected into the tube. Fluids and electrolytes removed in this way must be properly measured and replaced by the intravenous and subcutaneous route, but the general intoxication from the absorption of these fluids from the distended bowel is largely prevented, and the patient may be operated upon at an elected time in good condition rather than as an emergency case not properly prepared for the procedure. In many cases operation may be entirely obviated but in general it is a measure of preparation and minimizes the risk of operation. The tube is also of value in cases in which an elective operation is to be done on the bowel and it may be introduced a day or two before the operative procedure and be available above the site of an anastomosis to prevent postoperative distension and leakage.

SURGICAL INFECTIONS

The Sulphonamide Drugs.—During the year the indications and limitations of the sulphonamide group of drugs have been more clearly defined.

Sulfanilamide has continued to lead the field in the treatment of the hemolytic streptococcus infections and has been successful in controlling these infections, particularly when given in the early stages, to such an extent that they are no longer feared as they used to be in the hospital wards, and their number is relatively few because they are so frequently controlled by home and office medication by the local doctors. The effect of this drug in other types of infection is not so dramatic or certain. Some cases of urinary infection with the colon bacillus are frequently brought under control but many cases are not affected at all, and it seems to be of no avail against the pneumococcus, staphylococcus, or the nonhemolytic streptococci.

Sulfapyridine has continued to demonstrate its usefulness in pneumococcus infections but its nauseating propensities have made it extremely unpopular with the patients and this factor rules it out in many surgical conditions in which nausea and vomiting would seriously interfere with the convalescence, as for example, in abdominal operations in which disruption of the wound or postoperative hernia are of considerable danger and postoperative feeding is disturbed. This nauseating effect is considerably less when the drug is given in the form of sodium sulfapyridine intravenously but in some cases the intravenous method is not well tolerated.

For postoperative pneumonia sulfapyridine and sulfathiazole are both of considerable value although in some cases when used prophylactically pneumonia is not prevented and when it is used as a cure no beneficial effect is seen. This, however, is rather an exception than a rule, and on the whole sulfathiazole is the drug of choice for pulmonary complications in surgery.

Sulfathiazole is not so nauseating when given by mouth but it is rapidly eliminated and it is difficult to maintain a high level by oral administration except when given in very large doses.

During the year sulfathiazole has been used extensively for staphylococcus infections and it is certainly more effective than sulfanilamide and sulfapyridine against this organism but the tendency toward rapid localization and destruction of tissue in all parts of the body in staphylococcus infections frequently nullifies its favorable effect. In many cases metastatic foci are masked by the drug and their presence is not suspected because of the absence of local signs. However, they become apparent when the drug is stopped, and these masked foci subsequently may cause the death of the patient. In cases of staphylococcus septicemia this drug can not be depended upon to control the infection and it is necessary to use a doubly potent bacteriophage in conjunction with it in order to obtain the best results.

Peritonitis may be controlled in cases of perforated appendicitis by the use of these drugs; as yet it has not been determined which one is the best. Presumably sulfathiazole has a wider range than the other two but clinical experience has shown that all three of these drugs have a favorable effect in controlling postappendiceal peritonitis and in preventing the postoperative peritonitis in cases of bowel resection. In many instances these drugs have been introduced into the peritoneal cavity either in the form of powder or crystals or in concentrated solution. These drugs have not been found to be dependable, either for the prophylaxis or cure of anaerobic infections.

Zinz Peroxide.—Zinc peroxide is continuing to give satisfaction in the treatment of anaerobic infections and it is being used more and more in the prophylaxis of infection in places where it can be applied locally—in the abdominal wall and in the perineum as well as in the oral cavity and in the vagina. It has been used successfully before and after plastic operations to prevent the infection of the surrounding tissues from the contaminating organisms, many of which are anaerobic. It has also had increasing usefulness in minimizing the infection of tumors which have broken through the skin and ulcerated, particularly those around the oral cavity, and in the ulceration which occasionally follows extensive radiation of the skin.

X-ray.—The use of the x-ray in controlling and preventing surgical infections is still in the experimental stage and on the whole has not been entirely satisfactory but the technique of radiation is constantly changing and recent reports seem to indicate that this may yet prove a potent means of preventing or overcoming infection. Further experience during the coming years will be reported in this section.

PUBLIC HEALTH AND HYGIENE

By Ira V. Hiscock

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NATIONAL HEALTH

Problems pertaining to public health and physical fitness have been recognized in the national defense program. The phrase "maintenance of public health, safety, or interest" is used throughout the Selective Training and Service Act of 1940. Many problems were considered in a special conference called in September by the Surgeon General of the United States Public Health Service composed of the state and territorial health officers, members of the Public Health Service, personnel of the National Advisory Health Council, officials of the Army, the Navy, and other branches of the Federal Government, besides representatives of voluntary health agencies and of several professional organizations concerned with public health and medical services. In September, the President approved of an order establishing the Health and Medical Committee to advise the Council in National Defense and to coordinate health and medical activities affecting national defense. (*Public Health Reports,* U. S. Public Health Service, Sept. 27, 1940, Vol. 55, No. 39; Health Preparedness, Editorial, *A. J. P. H.,* December, 1940, Vol. 30, No. 12)

In the adjustments of the American people to a changing environment, health and medical care problems have been subjects of considerable discussion. Several approaches have been considered for an American health program, including a comprehensive public health and preventive medical program; the maintenance of a high standard of private medical services; experimentation with voluntary pre-payment plans to cover hospital costs, medical costs, and cash indemnity against wage loss; combinations of the various factors above mentioned for special population units; and state subsidy for indigents and unemployed. Recognition of a common aim has been emphasized. (The National Health Program—Present Status, Abel Wolman, *A. J. P. H.,* Jan. 1940, Vol. 30, No. 1; An American Health Program, D. B. Armstrong and W. P. Shepard, *A. J. P. H.,* Sept. 1940, Vol. 30, No. 9; Responsibility of Organized Medicine in Medical Care, Kendall Emerson, *A. J. P. H.* Oct. 1940, Vol. 30, No. 10)

With the conspicuous shift to greater age in the population, preventive medicine must attack the practical problems of the rising proportion of deaths attributable to diseases of middle and later life. A new unit for research into some of the many problems of aging, a unit on Gerontology, has been organized in the National Institute of Health of the U. S. Public Health Service. This unit is concerned with the first two of the following divisions of the science: (1) biology of senescence as a process, (2) human clinical problems of aging and of diseases characteristically associated with advancing years which include the mental changes of senescence and senectitude as well as the physical changes, and (3) socio-economic problems of a shifting age distribution in the population. (*Public Health Reports,* U. S. Public Health Service, Nov. 15, 1940, Vol. 55, No. 46)

CANCER

Cancer is a major health problem because of its frequency and because so many cancer patients are unable, with their own resources, to meet the costs of diagnosis and of treatment. Several states have taken steps toward more adequate cancer service, including health education. Research is clarifying the understanding of cancer. The National Cancer Institute, established in the U. S. Public Health Service, is conducting and fostering research work, promoting coordination of researches, procuring and loaning radium, providing training and instruction in technical matters relating to the diagnosis and treatment of cancer, and providing fellowships for cancer research. Besides the collaboration of its scientific staff, the Institute also exchanges information with other research laboratories. (The Federal Cancer Program, Ludvig Hektoen, *A. J. P. H.* July, 1940, Vol. 30, No. 7)

PNEUMONIA

The discovery of sulfapyridine has been a great boon to pneumonia therapy. Campaigns against pneumonia are reported in 31 states and two territories. A bill introduced in Congress for control of "common colds, influenza, and pneumonia" authorizes, if passed, $3,000,000 for use in the respective states. This would make it possible to initiate a pneumonia-control program on a nationwide basis, and would make available better medical supervision, more technical aid, increase in number of typing stations, and a supply of sulfapyridine and sulfathiazole including specific sera. Continued research is necessary to determine the relative value of specific serum and sulfapyridine in some of the 32 types of pneumonia organisms.

In recent years, epidemics of pneumonia due to specific types of pneumococcus have been observed with increasing frequency. A study of carriers seems to indicate that infection with Type I pneumococcus may be widespread in the absence of a high prevalence of the disease; epidemics of Type V pneumonia may not be associated with a continued high prevalence of carriers of this type in the general population; and there may be a relatively high prevalence of carriers of Type VI pneumococci in the absence of pneumonia due to this type.

Knowledge concerning influenza is increasing, and a more specific nomenclature has been developed, although some epidemics of clinical influenza are still of unknown cause. Progress is being made in the development of a vaccine. (Public Health in National Defense, W. S. Leathers, and Present Status of Knowledge concerning Influenza, Frank L. Horsfall, *A. J. P. H.*, Nov. 1940, Vol. 30, No. 11; Prevalence of Pneumococcus Carriers, Ernest L. Stebbins et al., *A. J. P. H.*, April, 1940, Vol. 30, No. 4; Comprehensive Study of Influenza in a Rural Community, *Public Health Reports*, U. S. P. H. S., Nov. 22, 1940, Vol. 55, No. 47)

TRICHINOSIS

Information concerning the sources of infection in cases of trichinosis in a large city has been presented by the Department of Public Health which has endeavored to control the disease. In order of number of cases for an 11-year period, the kind of pork involved was as follows: pork sausage, salami, mettwurst, fresh pork, ground pork and meat loaf, raw pork, pork chops or steaks, and ham. Importance of proper cooking is clear. A relatively large number of cases were traced to salami and mettwurst, products which are customarily eaten without cooking by the consumer. Products of this sort constitute dangerous avenues for trichina infection unless such products are prepared in packing houses or establishments operating under the Federal meat inspection regulations or equivalent regulations. (*Public Health Reports*, U. S. P. H. S:, May 24, 1940, Vol. 55, No. 21)

TUBERCULOSIS

A review of the status of control of tuberculosis indicates the need of many additional beds for tuberculosis patients placed where most needed coupled with an increase in health education. While tuberculosis mortality dropped 33 per cent and 34 per cent respectively in the last two decades, and a death rate of 10 per

100,000 population in 1980 might be obtained, such a favorable result is doubtful without increased measures of attack against this important disease. There are some 600,000 active cases of tuberculosis in the United States. The 25 per cent that will accept and need hospitalization will require 150,000 beds, or 60,000 short of the number available in the 732 institutions. Eight states now have a desirable ratio of 2.5 beds per death. (Presidential Address, Henry D. Chadwick, *Transactions,* 36th Annual Meeting, National Tuberculosis Association, 1940; *The Control of Tuberculosis in the United States,* Philip P. Jacobs, National Tuberculosis Association, 1940, 387 pp.)

DIABETES

Diabetes is increasingly becoming a public health problem, ranking eighth as a cause of death in New York City in 1938, for example, as compared with 27th place in 1900. "Diabetes is increasing because people cease to die young and live to die old." The disease is discovered more frequently because of better medical care and better facilities for diagnosis. Diabetics are more numerous because they are living instead of dying. The disease is hereditary, but the heredity must be present on both sides. The chief inciting cause in the hereditarily predisposed is obesity. The disease concerns each member of the family and their descendants. "And yet if nurses and doctors will only study the disease and tell the patient what they know, it is a fact that he who has it can live almost the life of those about him." (Diabetes—A Public Health Problem, Elliott P. Joslin, *P. H. Nursing,* Jan. 1940.)

VENEREAL DISEASES

Considerable progress was reported in venereal disease control in 1940 in the extension of treatment facilities, of laboratory services, of research and training programs, and in popular response. Congress appropriated $5,000,000 for the prosecution of the Federal program during the year. Case-finding and case-holding were continually stressed. Syphilis and gonorrhea constitute the most serious of threats to the health and morale of the Army, the Navy, and of those concentrations of workers who man the essential war industries. Infections among these groups are in turn emphasized as a threat to the civilian population. Extension of diagnosis, treatment, and follow-up measures of the past two years has given an initial advantage over the situation of 1917, but legal protective measures are urgently needed in addition as a means of dealing with prostitution, quackery, and abuse of intoxicating liquor. (Venereal Disease Information, U. S. Public Health Service, December, 1939, Vol. 20, No. 12, Syphilis, Gonorrhea and the National Defense Program, *Journal Soc. Hyg.,* Nov. 1940, Vol. 26, No. 8)

There is agreement on the proposition that the venereal diseases should be an integral part of courses (especially hygiene, bacteriology, public health, human biology) which deal with other communicable diseases in high schools. At present, however, the majority of high schools and general colleges do not have health courses as a regular part of their curricula. There is some opposition to isolated lectures on venereal diseases, but including them in a series of health lessons is highly approved. While the venereal diseases now receive emphasis as health problems, they have little attention in many of the best programs for sex education in schools and colleges and extra-curricular instruction. There is needed also a broad program of education that concerns the normal relations of the two sexes. (Health Education concerning Venereal Diseases, M. A. Bigelow, *Journal Soc. Hyg.,* Oct. 1940, Vol. 26, No. 7)

SIGHT CONSERVATION

There are prenatal and hereditary factors related to the prevention of blindness. Syphilis may be transmitted from an infected mother to her unborn child. Over half of the states have passed laws requiring pre-marital health examinations to prevent the spread of syphilis and a few require examination of expectant mothers to protect the babies. Experiments have shown that a diet rich in vitamin A, given to the expectant mother, is essential for the proper development of the visual apparatus. In regard to cross-eyes, squint, and strabismus, the most satisfactory visual results are obtained when the child with cross-eyes—no matter how young—is placed under the care of an ophthalmologist as soon as the defect is discovered. The best eye health program in school provides each child with a thorough eye examination and continuous supervision of the eyes. Conservation of vision involves not only concern with eye conditions, but also provision of correct lighting in schools, colleges, libraries, homes, and places of employment. (The Need and Opportunities for Prevention of Blindness and for Sight Conservation, M. E. Alvaro and Eleanor Brown Merrill, *The Sight-Saving Review,* June 1940, Vol. X, No. 2.)

MENTAL HYGIENE IN PUBLIC HEALTH NURSING

The contribution which mental hygiene may make to public health nursing is considerable. Through this contribution a new philosophy is not achieved but rather "more depth, accuracy, and vitality along the lines of work already established in the community." It is emphasized that attitudes and relationships do not exist by and of themselves but arise from and contribute to the stage of development of our skill, understanding, and personal characteristics. (*The Public Health Nurse and her Patient,* Ruth Gilbert, The Commonwealth Fund, New York, 1940, 396 pp.)

VITAL STATISTICS

By Halbert L. Dunn

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SCOPE

The scope of vital statistics includes the registration, tabulation, and analysis of data dealing with population, marriages, divorces, births, deaths, and diseases. Official vital statistics in the Division of Vital Statistics, United States Bureau of the Census, have been for the most part limited to births and deaths but in 1939 the activities were expanded to include marriage and divorce data, statistics of patients in mental institutions, information relating to hospitals and hospital facilities, and criminal statistics.

MORTALITY AND NATALITY STATISTICS

The most important facts collected on and tabulated from birth and death certificates include such items as the place of occurrence of births and deaths, the place of residence, age, race, marital status, and cause of death.

In addition to supplying data for the numerous tabulations required by different fields of endeavor, such as public health, social security, public welfare, and studies of population problems, the certificates themselves are essential documents to all citizens as a basis for legal proof of birth and death. The importance of the birth and death certificates has increased enormously during the past few years with the establishment of new social legislation dealing with old age and unemployment benefits and death claims. Proof of age and citizenship by means of the birth certificate have become a vital necessity to every citizen. This fact was brought forcibly to the attention of the American people in 1940 when the industries mobilized for national defense required proof of personal identity, citizenship, and age from those employed or seeking employment in the defense industries.

According to the latest available natality and mortality statistics for the United States, there were, in 1939, 2,265,588 births and 1,387,897 deaths, a decrease of 21,374 in the number of births and an increase of 6,506 in the number of deaths as compared to the corresponding figures for 1938. On a rate basis, these data show that the birth rate declined from 17.6 per 1,000 estimated population in 1938 to 17.3 per 1,000 population in 1939. There was also a slight decrease in the death rate from 10.7 per 1,000 population in 1938 to 10.6 per 1,000 population in 1939.

The trends of the natality and mortality rates for the U. S. Registration Area (Table I) show a rapid decline in the birth rate for the birth registration area from 1915 to 1933 when the downward trend was checked. Since 1933, the general trend in the birth rate appears to be in the upward direction, but the increase during the period from 1933 to 1939 has been very slight. The death rate has been generally declining since the establishment of the U. S. Death Registration in 1900. The rate of decline, however, has been considerably less than that for birth rate. It is of interest to note that the death rate in 1939 was the lowest ever reported for the U. S. Death Registration Area.

ORGANIZATION AND FIELD WORK

Although the compilation of vital statistics on a national scale is primarily a function of the United States Bureau of the Census, the legal power and responsibility for the registration and collection of vital data lie with each state. The system of collection is further decentralized, and the state offices serve, in the case of birth and death registration, as central agencies for the collection of the original certificates from the registration districts within their jurisdiction. The information collected is then transmitted to the Division of Vital Statistics, Bureau of the Census.

Under such an organizational plan involving Federal, state, county, and local government units, complete cooperation between the various agencies is essential. The coordination of the activities of the various groups is also necessary in order to obtain uniformity in the quality and type of statistical data which are being collected.

One of the basic problems in the registration of births and deaths is that of completeness of birth and death registration. This problem is particularly acute in connection with the registration of births in the rural areas of the South and Southwest. A variety of devices is being used continually to stimulate registration throughout the country. A certain number of full-time field agents are employed by the national and state authorities for this purpose. The personnel of the county health departments also actively cooperate in securing complete registration.

Checks of completeness of registration with attendant publicity campaigns are conducted in areas where birth registration is known to be incomplete. In addition to these routine checks, a complete nation-wide check of birth registration was made simultaneously with the taking of the decennial census of 1940. In this nationwide test, the census enumerators collected information on a special infant card for each child under four months of age at the time of the population census. The infant cards thus obtained are now being matched with the transcripts of birth certificates for children born during the corresponding four months period. When this matching procedure has been completed, the residue of unmatched infant cards will represent apparently unregistered births, and the residue of unmatched birth transcripts the apparently unenumerated children. The Bureau of the Census will then undertake to determine if the births of children represented by unmatched infant

TABLE 1

TREND OF DEATH AND BIRTH RATES FOR THE REGISTRATION AREAS

(Exclusive of Stillbirths)

Calendar Year	Estimated Population of Continental United States	Death-Registration Area in Continental United States					Birth-Registration Area in Continental United States				
		Population		Deaths		Number of States	Population		Births		Number of States
		Number	Per Cent of Total	Number	Rate Per 1,000 Population		Number	Per Cent of Total	Number	Rate Per 1,000 Population	
1939	130,601,000	130,601,000	100.0	1,387.897	10.6	48	130,601.000	100.0	2,265,588	17.3	48
1938	129,673,000	129,673,000	100.0	1,381,391	10.7	48	129,673,000	100.0	2,286,962	17.6	48
1937	128,747,000	128,747,000	100.0	1,450,427	11.3	48	128,747,000	100.0	2,203,337	17.1	48
1936	127,827,000	127,827,000	100.0	1,479,228	11.6	48	127.827,000	100.0	2,144,790	16.8	48
1935	126,903,000	126,903,000	100.0	1,392,752	11.0	48	126,903,000	100.0	2,155,105	17.0	48
1934	126,057,000	126,057,000	100.0	1,396,903	11.1	48	126,057,000	100.0	2,167,636	17.2	48
1933	125,272,000	125,272,000	100.0	1,342,106	10.7	48	125,272,000	100.0	2,081,232	16.6	48
1932	124,474,000	119,768,000	96.3	1,308,529	10.9	47	118,516,000	95.2	2,074,042	17.5	47
1931	123,687,000	119,023.000	96.3	1,322,587	11.1	47	117,099,000	94.7	2,112,760	18.0	46
1930	122,953,000	118,331,000	96.2	1,343,356	11.4	47	116,421,000	94.7	2,203,958	18.9	46
1929	121,526,429	116,317,515	95.7	1,386,363	11.9	46	115,097,972	94.7	2,169,920	18.9	46
1928	119,861,607	114,258,516	95.3	1,378,675	12.1	44	113,050,663	94.3	2,233,149	19.8	44
1927	118,196,785	108,177,568	91.5	1,236,949	11.4	42	103,575,656	87.6	2,137,836	20.6	40
1926	116,531,963	104,938,301	90.1	1,285,927	12.3	41	89,682,479	77.0	1,856,068	20.7	35
1925	114,867,141	102.951,999	89.6	1,219,019	11.8	40	87,486,096	76.2	1,878,880	21.5	33
1924	113,202,319	100,082,062	88.4	1,173,990	11.7	39	86,256,025	76.2	1,930,614	22.4	33
1923	111,537,497	97,816,104	87.7	1,193,017	12.2	38	80,694,406	72.3	1,792,646	22.2	30
1922	109,872,675	93,866,240	85.4	1,101,863	11.7	37	79,415,841	72.3	1,774,911	22.3	30
1921	108,207,853	89,102,434	82.3	1,032.009	11.6	34	70,738,177	65.4	1,714,261	24.2	27
1920	106,543,031	87,632,592	82.3	1,142,558	13.0	34	63,740,689	59.8	1,508,874	23.7	23
1919	105,003,065	85,166,043	81.1	1,096.436	12.9	33	61,483,423	58.6	1,373,438	22.3	22
1918	103,587,955	81,333,675	78.5	1,471,367	18.1	30	55,515,241	53.6	1,363,649	24.6	20
1917	102,172,845	74,984,498	73.4	1,068,932	14.3	27	54,771,416	53.6	1,353,792	24.7	20
1916	100,757,735	71,349,162	70.8	1,001,921	14.0	26	32,788,670	32.5	818,983	25.0	11
1915	99,342,625	67,095,681	67.5	909,155	13.6	25	30,936,179	31.1	776,304	25.1	10
1914	97,927,516	65,813,315	67.2	898,059	13.6	25					
1913	96,512,407	63,200,625	65.5	890,848	14.1	24					

TABLE 1—Continued

Calendar Year	Estimated Population of Continental United States	Death-Registration Area in Continental United States					Birth-Registration Area in Continental United States				
		Population		Deaths		Number of States	Population		Births		Number of States
		Number	Per Cent of Total	Number	Rate Per 1,000 Population		Number	Per Cent of Total	Number	Rate Per 1,000 Population	
1912	95,097,298	60,359,974	63.5	838,251	13.9	23					
1911	93,682,189	59,183,071	63.2	839,284	14.2	23					
1910	92,267,080	53,831,742	58.3	805,412	15.0	[1]21					
1909	90,691,354	50,870,518	56.1	732,538	14.4	18					
1908	89,073,360	46,789,913	52.5	691,574	14.8	17					
1907	87,455,366	43,016,990	49.2	687,034	16.0	15					
1906	85,837,372	41,983,419	48.9	658,105	15.7	15					
1905	84,219,378	34,052,201	40.4	545,533	16.0	10					
1904	82,601,384	33,345,163	40.4	551,354	16.5	10					
1903	80,983,390	32,701,083	40.4	524,415	16.0	10					
1902	79,365,396	32,029,815	40.4	508,640	15.9	10					
1901	77,747,402	31,370,952	40.3	518,207	16.5	10					
1900	[2]75,994,575	30,765,618	40.5	539,939	17.6	10					
Census Year											
1900	[2]75,994,575	[2]28,807,269	37.9	512,669	17.8	9					
1890	[2]62,947,714	[2]19,659,440	31.2	386,212	19.6	8					
1880	[2]50,155,783	[2]8,538,366	17.0	169,453	19.8	2					

[1] North Carolina is included, although returns were received only from municipalities having populations of 1,000 or more in 1900; the remainder of the State was added in 1916.

[2] Enumerated population for census year ending May 31.

Note.—Death and birth rates for 1930–1939 are based upon population estimates obtained by interpolation, using the provisional population figures from the 1940 census. They differ in some cases from rates previously published for these years. For every year the District of Columbia is in both areas, but is not included in the "Number of States"; the death area also includes a varying number of registration cities in nonregistration states.

XXIII. MEDICAL SCIENCES

TABLE 2 NATALITY AND MORTALITY, BY STATES, 1939

	Estimated Population July 1, 1939*	Live Births		All Deaths		Deaths Under 1 Year	
		Number	Rate Per 1,000 Estimated Population	Number	Rate Per 1,000 Estimated Population	Number	Per 1,000 Live Births
UNITED STATES	130,601,000	2,265,588	17.3	1,387,897	10.6	108,846	48.0
Alabama	2,816,000	61,385	21.8	28,301	10.0	3,675	59.9
Arizona	493,000	10,928	22.2	5,851	11.9	1,031	94.3
Arkansas	1,941,000	35,565	18.3	16,514	8.5	1,637	46.0
California	6,784,000	103,453	15.2	77,130	11.4	4,385	42.4
Colorado	1,113,000	20,692	18.6	12,558	11.3	1,134	54.8
Connecticut	1,702,000	23,463	13.8	17,696	10.4	842	35.9
Delaware	264,000	4,384	16.6	3,169	12.0	193	44.0
District of Columbia	650,000	14,037	21.6	8,292	12.8	669	47.7
Florida	1,845,000	32,328	17.5	21,295	11.5	1,822	56.4
Georgia	3,104,000	64,781	20.9	31,843	10.3	3,780	58.4
Idaho	518,000	11,068	21.4	4,753	9.2	508	45.9
Illinois	7,859,000	117,841	15.0	86,994	11.1	4,474	38.0
Indiana	3,403,000	58,349	17.1	39,510	11.6	2,302	39.5
Iowa	2,531,000	43,765	17.3	26,465	10.5	1,697	38.8
Kansas	1,807,000	29,115	16.1	18,469	10.2	1,146	39.4
Kentucky	2,823,000	60,587	21.5	29,507	10.5	3,187	52.6
Louisiana	2,341,000	48,844	20.9	24,521	10.5	3,077	63.0
Maine	842,000	14,987	17.8	10,815	12.9	785	52.4
Maryland	1,789,000	28,291	15.8	20,831	11.6	1,422	50.3
Massachusetts	4,318,000	63,657	14.7	50,917	11.8	2,358	37.0
Michigan	5,161,000	94,418	18.3	52,019	10.1	3,955	41.9
Minnesota	2,769,000	50,237	18.1	26,784	9.7	1,798	35.8
Mississippi	2,169,000	51,721	23.8	22,646	10.4	2,907	56.2
Missouri	3,765,000	58,876	15.6	42,585	11.3	2,655	45.1
Montana	553,000	10,897	19.7	5,901	10.7	534	49.0
Nebraska	1,318,000	22,338	16.9	12,194	9.2	816	36.5
Nevada	109,000	1,940	17.8	1,263	11.6	87	44.8
New Hampshire	488,000	7,934	16.3	6,301	12.9	363	45.8
New Jersey	4,141,000	56,379	13.6	43,959	10.6	2,184	38.7
New Mexico	521,000	14,215	27.3	5,917	11.4	1,549	109.0
New York	13,320,000	187,575	14.1	149,501	11.2	7,370	39.3
North Carolina	3,534,000	79,149	22.4	31,793	9.0	4,683	59.2
North Dakota	643,000	13,158	20.5	5,424	8.4	645	49.0
Ohio	6,871,000	109,272	15.9	76,927	11.2	4,691	42.9
Oklahoma	2,335,000	43,471	18.6	20,391	8.7	2,162	49.7
Oregon	1,078,000	16,715	15.5	11,797	10.9	593	35.5
Pennsylvania	9,872,000	161,049	16.3	108,007	10.9	7,343	45.6
Rhode Island	706,000	10,444	14.8	7,775	11.0	412	39.4
South Carolina	1,893,000	42,811	22.6	19,296	10.2	2,834	66.2
South Dakota	646,000	11,616	18.0	5,517	8.5	481	41.4
Tennessee	2,889,000	53,353	18.5	28,722	9.9	2,874	53.9
Texas	6,374,000	121,049	19.0	60,218	9.4	8,110	67.0
Utah	545,000	13,007	23.9	4,712	8.6	514	39.5
Vermont	358,000	6,375	17.8	4,544	12.7	291	45.6
Virginia	2,647,000	52,921	20.0	28,636	10.8	3,221	60.9
Washington	1,710,000	26,538	15.5	18,516	10.8	976	36.8
West Virginia	1,887,000	41,545	22.0	17,490	9.3	2,272	54.7
Wisconsin	3,112,000	54,168	17.4	31,424	10.1	2,179	40.2
Wyoming	245,000	4,897	20.0	2,207	9.0	223	45.5

* Population estimates obtained by interpolation, using the provisional population figures from the 1940 census.

TABLE 3

DEATH RATE PER 100,000 ESTIMATED POPULATION FOR PRINCIPAL CAUSES IN THE REGISTRATION AREA IN CONTINENTAL UNITED STATES

Cause of Death	1900	1910	1920	1930	1937	1938	*1939
All causes (exclusive of stillbirths)	1,755.0	1,496.2	1,303.8	1,135.2	1,126.6	1,065.3	1,062.7
Typhoid and paratyphoid fever	35.9	23.5	7.8	4.8	2.1	1.9	1.5
Smallpox	1.9	0.4	0.6	0.1	(1)	(1)	(1)
Measles	12.5	12.3	8.8	3.2	1.2	2.5	0.9
Scarlet fever	10.2	11.6	4.6	1.9	1.4	0.9	0.7
Whooping-cough	12.1	11.4	12.5	4.8	3.9	3.7	2.3
Diphtheria	43.3	21.4	15.3	4.9	2.0	2.0	1.5
Influenza and pneumonia (all forms)	203.4	162.1	208.0	102.9	115.0	80.5	75.9
Influenza	22.9	14.4	70.9	19.5	29.5	12.7	16.4
Bronchopneumonia[2]	21.9	47.1	54.5	34.4	35.6	30.5	27.2
Lobar pneumonia		46.4	73.0	45.5	46.8	34.3	29.3
Pneumonia, unspecified	158.6	54.3	9.5	3.5	3.1	3.0	2.9
Erysipelas	5.1	4.5	3.1	2.1	1.0	0.5	0.5
Epidemic cerebrospinal meningitis	(3)	0.4	1.6	3.6	1.7	0.8	0.7
Tuberculosis of the respiratory system	180.5	136.0	97.0	63.5	49.2	44.7	43.2
Other forms of tuberculosis	21.4	24.3	17.0	8.1	4.7	4.4	4.9
Malaria	7.9	2.2	3.6	2.9	2.1	1.8	1.3
Cancers and other malignant tumors	63.0	76.2	83.2	97.4	112.4	115.1	117.8
Diabetes mellitus	9.7	14.9	16.0	19.0	23.8	23.9	25.6
Cerebral hemorrhage and softening	71.5	75.7	81.7	81.1	77.3	76.5	78.1
Diseases of the heart[4]	132.1	158.8	159.1	205.9	223.1	217.8	214.1
Bronchitis	45.7	23.4	13.2	4.2	3.1	2.8	2.9
Diarrhea and enteritis[5]	133.2	117.4	54.3	26.4	14.7	14.3	11.6
Appendicitis	9.7	11.4	13.4	15.3	11.9	11.0	10.8
Hernia, intestinal obstruction[6]	12.2	12.4	10.6	10.3	10.2	9.7	9.4
Cirrhosis of the liver	12.9	13.9	7.1	7.3	8.5	8.3	8.3
Nephritis	89.0	99.1	89.2	90.9	79.9	77.5	83.1
Puerperal septicemia	5.7	7.2	6.6	4.7	2.9	2.6	2.9
Other puerperal causes	7.6	8.5	12.5	8.1	5.5	5.1	4.1
Congenital malformations and diseases of early infancy	91.8	88.1	84.7	61.1	49.2	48.7	48.5
Suicide	11.5	16.0	10.2	15.7	15.0	15.3	14.2
Homicide	2.1	5.9	7.1	9.0	7.6	6.8	6.4
Automobile accidents[7]	(3)	1.8	10.4	24.6	28.9	23.6	23.3
Automobile—railroad collisions	(3)	(3)	(3)	1.5	1.4	1.1	1.0
Automobile—street car collisions	(3)	(3)	(3)	0.4	0.2	0.1	0.1
Other external causes	79.0	82.6	60.9	54.1	51.2	47.5	46.5
Unknown and ill-defined diseases	73.8	23.1	17.7	21.0	16.0	15.2	15.1

* Rates are provisional.

[1] Less than one-tenth of 1 per 100,000 estimated population.

[2] Includes capillary bronchitis.

[3] Not separately tabulated.

[4] Excludes diseases of coronary arteries.

[5] 1900, 1910 and 1920 includes ulcer of the duodenum.

[6] 1900, 1910 and 1920 excludes adhesions of intestines.

[7] Excludes deaths from collision with railroad and street cars.

Note.—Rates for 1930-1939 are based upon population estimates obtained by interpolation, using the provisional population figures from the 1940 census.

cards were, in fact, actually registered. It is planned to do this work through state bureaus of vital statistics and through the Federal field staff.

REVISED STANDARD CERTIFICATES OF BIRTH, DEATH, AND STILLBIRTH

The standard birth and death certificates of the Bureau of the Census were revised in 1939. For the first time, the Bureau put into use the standard stillbirth certificate as a record separate from the birth certificate. These revised forms of certificates were used for reporting births, deaths, and stillbirths in 1940.

INTERNATIONAL LIST OF CAUSES OF DEATH

The fifth decennial revision of the International List of Causes of Death, adopted by the International Commission in Paris in 1938, was published by the Bureau of the Census in 1940. A new feature of this manual is the inclusion of the joint-cause classification which was heretofore published as a separate volume. The major changes in the new International List of Causes of Death involve the titles relating to cardiac, puerperal, and accidental causes of death. The mortality data for 1939 were coded on the basis of the new International List.

PUBLICATIONS

The annual volumes of birth, stillbirth, infant mortality and mortality statistics for 1938 have been completed and will appear in two parts: *Vital Statistics of the United States, Part I,* containing mortality and natality data by place of occurrence, and *Vital Statistics of the United States, Part II,* containing mortality and natality data by place of residence. Greater emphasis has been placed on mortality and natality tabulations by place of residence in the 1938 volumes.

Other publications issued during 1940 were as follows: the *Weekly Health Index,* containing current mortality and infant mortality statistics for cities over 100,000 population, and the *Weekly Accident Bulletin,* giving current motor-vehicle accident fatality statistics for 152 cities; the *Monthly Vital Statistics Bulletin* which presents a series of current natality, infant mortality, and general mortality reports by states; and *The Registrar* which is a monthly publication of news items relating to registration procedures. Volumes 9, 10 and 11 of the *Vital Statistics—Special Report* series were also published. Volume 9 contains tabulations on selected subjects and also a number of analytical studies. Volume 10 includes the 1939 vital statistics summaries for the individual states and Volume 11 the summary of motor-vehicle accident fatalities in 1939 also for each state.

HOSPITAL AND INSTITUTIONAL STATISTICS

During the past several years, the Division of Vital Statistics has tabulated natality and mortality statistics according to hospital or institution where the birth or death occurred. On the basis of the information on the death certificates, a national index of institutions was prepared. This national list was utilized in 1940 for the purpose of obtaining institutional data relating to clinical type, type of control, and facilities. It is expected that the data collected on hospitals and institutions will be published in the *Vital Statistics—Special Reports* in 1941.

MENTAL INSTITUTION STATISTICS

Tabulation and analysis of data collected in the annual enumeration of patients in mental institutions, of which there are reported to be 279 under state control, 130 city and county, 27 veterans', and 356 private, are made by the Bureau of the Census. Hospitals for mental disease as well as institutions for mental deficiency and epilepsy are included in these totals. The 1939 and 1940 reports will also include reports of those general hospitals which have reported special facilities for the treatment of patients with neuropsychiatric disorders.

The two publications "Patients in Hospitals for Mental Disease" and "Mental Defectives and Epileptics in Institutions" have been combined in the 1938 report, completed this year, and a third section presenting data on mental defectives and epileptics in both types of institutions has been added. The revised publication is called *Patients in Mental Institutions: 1938.* It is expected to maintain this form in future reports.

In addition, the 1939 report will contain data on resident patients, on discharges direct from the hospital, and on deaths. In this census the first nation-wide collection of age distribution by mental disorder of resident patient population will fill a wide gap in knowledge of the patients in mental institutions. Data collected on deaths will enable correlation of cause of death with type of mental disorder, a tabulation hitherto unavailable on a national basis.

In the interest of supplying a demand from state and hospital administrators and from members of interested professional groups, the 1940 schedules include information on the length of hours of duty of the nursing personnel and the value of food raised by the institution. The first of these items will make possible comparison with established patient-nursing personnel standards and the second will improve the value of inter-institutional comparisons on the important item of food cost, which were previously reported without taking food raised into account.

MARRIAGE AND DIVORCE STATISTICS

During 1940 the Bureau of the Census began its renewed collection of marriage and divorce statistics by completing negotiations with 28 states and the District of Columbia for the receipt of transcripts of their 1939 and 1940 marriage records. Fourteen of these states and the District of Columbia agreed also to return transcripts of their divorce records for the same years. The schedules began to be received in the Bureau in September; at the close of the year they were flowing in rapidly and the work of preparing them for statistical tabulation of their data was well under way.

There has thus been taken the first step toward filling a serious gap in the vital statistics of the United States. Since 1932 no compilations of the nation's marriages and divorces have been made, even though during recent years the need for such statistics has become greater than ever before. New social legislation and, recently, conscription for military service have added to the demands for knowledge of marriage and divorce rates and trends previously voiced largely by sociologists and students of fertility and population.

Unlike the earlier Federal tabulations of marriages and divorces, those that are expected to result from the present collection will differentiate by age, race, residence, and other such basic factors, the persons who marry or obtain divorces. It is the urgent need for statistics of this kind that has determined the method of collection being employed. Only from states in which marriage and divorce records are collected centrally can there be obtained sufficiently complete copies of individual marriage and divorce records to yield these detailed data.

The 28 states supplying marriage transcripts, and the 14 supplying divorce transcripts, plus the District of Columbia in both cases, represent tentative "registration areas." The Bureau hopes that the establishment of such registration areas for marriage and divorce will be authorized, so that the collection and tabulation of marriage and divorce statistics will be continued on a permanent annual basis. By the maintenance of high standards for inclusion of states within the areas—standards requiring central collection, good registration, completeness of reporting, and completeness and accuracy of data—good annual marriage and divorce statistics, eventually covering all states, can be expected in the future. It has been convincingly demonstrated to the Bureau that this method of procedure is desired by most registration officials, investigators, and other authorities and interested persons throughout the country. Tabulations of the data now being collected are expected to be released toward the end of 1941.

CRIMINAL STATISTICS

The Bureau of the Census makes two annual collections of data in the field of criminal statistics: first, statistics of prisoners admitted to and discharged from state and Federal prisons and reformatories; second, statistics of criminal cases disposed of in state courts of general criminal jurisdiction. These data are compiled for each calendar year and published in two reports: "Prisoners in State and Federal Prisons and Reformatories" and "Judicial Criminal Statistics."

For the year 1940 the prisons and reformatories of 47 states, District of Columbia, and the Federal Government reported certain information on each prisoner entering and leaving the institution during the year, and 25 states cooperated in reporting dispositions of criminal cases in the state courts. It is expected that for the year 1941 reports will be received from the prisons and reformatories in all 48 states of the Union.

The Bureau of the Census also collects decennially statistics of prisoners in local jails and workhouses. The last jail census occurred in 1933 and presumably the next will be made in 1943. An experiment in the collection of annual jail statistics was undertaken for the year 1940 in a few selected areas. The data compiled from this experiment will be published in several special reports.

SPECIAL PROJECTS

In conjunction with the 16th Decennial Census, a number of major projects were started in the United States Division of Vital Statistics in 1940. One of these projects relates to the testing of the completeness of birth registration by checking transcripts of birth certificates against the infant enumeration data from the 1940 Census. Other studies being conducted include (a) analysis of results and problems of residence allocation of births and deaths, (b) regional differences in mortality and natality, (c) study of the comparability of mortality statistics on the basis of the various decennial revisions of the International List of Causes of Death, (d) compilation and analysis of mortality and natality rates from 1900 to 1940, (e) statistical study of mortality from diseases of the heart, (f) population study of patients in mental institutions, (g) a critique of marriage and divorce statistics, and (h) differentials in judicial and penal treatment of offenders.

PERIODICAL PUBLICATIONS

American Druggist
572 Madison Ave., New York City.

American Journal of Anatomy
36th Street and Woodland Aves., Philadelphia.

American Journal of Cancer
654 Madison Ave., New York City.

American Journal of Clinical Pathology
Mount Royal and Guilford Aves., Baltimore, Md.

American Journal of the Medical Sciences
600 Washington Sq., Philadelphia.

American Journal of Nursing
1790 Broadway, New York City.

American Journal of Obstetrics and Gynecology
3523 Pine Boulevard, St. Louis, Mo.

American Journal of Pathology
818 Harrison Ave., Boston.

American Journal of Pharmacy
Philadelphia College of Pharmacy and Science, Philadelphia.

American Journal of Public Health and the Nation's Health
1790 Broadway, New York City.

American Journal of Surgery
49 West 45th Street, New York City.

Anatomical Record
36th Street and Woodland Ave., Philadelphia.

Annals of Medical History
49 East 33rd Street, New York City.

Annals of Surgery
227 South Sixth Street, Philadelphia.

Journal of the American College of Dentists
632 West 168th Street, New York City.

Journal of the American Dental Association
212 East Superior Street, Chicago.

Journal of the American Institute of Homeopathy
280 Madison Ave., New York City.

Journal of the American Medical Association
535 North Dearborn Street, Chicago.

Journal of the American Pharmaceutical Association
2215 Constitution Ave., Washington, D.C.

Journal of Bacteriology
Mount Royal and Guilford Aves., Baltimore, Md.

Journal of Bone and Joint Surgery
8 The Fenway, Boston.

Journal of Clinical Investigation
654 Madison Ave., New York City.

Journal of Dental Research
632 West 168th Street, New York City.

Journal of Experimental Medicine
York Ave. and 66th Street, New York City.

Journal of Infectious Diseases
629 South Wood Street, Chicago.

Journal of Nervous and Mental Disease
64 West 56th Street, New York City.

Journal of Pharmacology and Experimental Therapeutics
Mount Royal and Guilford Aves., Baltimore, Md.

Journal of Social Hygiene
1790 Broadway, New York City.

Medical Life
4 St. Luke's Place, New York City.

Medical Record
20 Vesey Street, New York City.

Medical Review of Reviews
4 St. Luke's Place, New York City.

Medicine
Mount Royal and Guilford Aves., Baltimore, Md.

N. Y. State Journal of Medicine
292 Madison Ave., New York City.

Radiology
607 Medical Arts Building, Syracuse, N.Y.

Surgery, Gynecology and Obstetrics
54 East Erie Street, Chicago.

Yale Journal of Biology and Medicine
New Haven, Conn.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

ACADEMY OF MEDICINE, 2 E. 103rd St., New York City.

ALLIANCE AGAINST FRAUDS, 36 W. 44th St., New York City.

ALLIED DENTAL COUNCIL, 145 W. 57th St., New York City.

AMERICAN ACADEMY OF APPLIED DENTAL SCIENCE, 587 Fifth Ave., New York City.

AMERICAN COLLEGE OF SURGEONS, 40 E. Erie St., Chicago, Ill.

AMERICAN GYNECOLOGICAL SOCIETY, 1220 Park Ave., New York City.

AMERICAN HEART ASSN., INC., 50 W. 50th St., New York City.

AMERICAN INSTITUTE OF HOMEOPATHY, 280 Madison Ave., New York City.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY, INC., 708 Medical Arts Bldg., Rochester, N.Y.

AMERICAN MEDICAL ASSN., 535 N. Dearborn St., Chicago, Ill.

AMERICAN OPHTHALMOLOGICAL SOCIETY, 255 S. 17th St., Philadelphia, Pa.

AMERICAN OSTEOPATHIC ASSN., 540 N. Michigan Ave., Chicago, Ill.

AMERICAN PHYSIOLOGICAL SOCIETY, 303 E. Chicago Ave., Chicago, Ill.

AMERICAN SOCIETY OF CLINICAL PATHOLOGISTS, 531 N. Main St., South Bend, Ind.

AMERICAN SOCIETY FOR THE CONTROL OF CANCER, 1250 Sixth Ave., New York City.

AMERICAN SOCIETY OF TROPICAL MEDICINE, Ohio State University College of Medicine, Columbus, Ohio.

AMERICAN VETERINARY MEDICAL ASSN., 221 N. La Salle St., Chicago, Ill.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES, 5 S. Wabash Ave., Chicago, Ill.

ASSOCIATION OF MILITARY SURGEONS OF

THE U.S., Army Medical Museum, Washington, D.C.

EDWARD L. TRUDEAU FOUNDATION FOR RESEARCH AND TEACHING IN TUBERCULOSIS, Saranac Lake, N. Y.

NATIONAL LEAGUE OF NURSING EDUCATION, 50 W. 50th St., New York City.

NATIONAL TUBERCULOSIS ASSN., 50 W. 50th St., New York City.

NEW YORK ACADEMY OF SCIENCES, 77th St. and Central Park West, New York City.

NEW YORK HEALTH DEPARTMENT, INC., 125 Worth St., New York City.

OSTEOPATHIC AID ASSN., 60 East 42nd St., New York City.

PUBLIC HEALTH COMMITTEE, 2 E. 103rd St., New York City.

ROCKEFELLER FOUNDATION, 49 W. 49th St., New York City.

SOCIETY OF AMERICAN BACTERIOLOGISTS, Agricultural Hall, University of Wisconsin, Madison, Wis.

SOCIETY OF MEDICAL JURISPRUDENCE, 477 First Ave., New York City.

SOUTHERN MEDICAL ASSN., 1928 First Ave., Birmingham, Ala.

UNITED HOSPITAL FUND, 370 Lexington Ave., New York City.

DIVISION XXIV

PHILOSOPHICAL AND SOCIAL SCIENCES

PSYCHOLOGY

By Wilbur S. Hulin

Professor, University of Oregon

GENERAL

Main Trends.—Outstanding activities include (1) many specific researches on public opinion, (2) study of chemical influences on nerves for therapeutic purposes, (3) electric records of brain activities, (4) extension of counselling services.

Changes in America.—Reviewing the past 50 years, J. S. Bruner and G. W. Allport believe there are two opposed lines of psychological interest. One is toward the personal study of the individual and the other toward group measurement and political participation; both of these maintain traditional empirical and quantitative methods (*Psych. Bull.,* Dec.). Also, Dr. Allport pointed out that the diversified lines of scientific investigation in America is a sample of our democratic life (ibid, Jan.).

Popular.—*Human Nature Writ Large* (Univ. No. Carolina), by F. Creedy, discusses nationalism, religious movements and competition in terms of "primal urges." *Let's Understand Each Other* (Woman's Press) presents narratives of many personalities, by E. H. R. Wembridge. Helpful advice is given in J. Jastrow's *Getting More out of Life* (Emerson) and H. Hart's *Chart for Happiness* (Macmillan). F. Kunkel's latest exposition of We-Psychology is *How Character Develops* (Scribners). *Exploring Normal Psychology* (Heath), by G. R. Thornton and J. Tiffin, is more general.

A. P. A.—Annual American Psychological Association meetings were held at Pennsylvania State College in September. In plans for 1941 the Society for Psychological Study of Social Issues proposed studies of social change in leadership, political control, and revolutionary moves. The presidential address by L. Carmichael was on "The Experimental Embryology of Mind" (*Psych. Bull.,* Jan. 1941). New special sessions were held on air and highway traffic and on musical aptitude.

General Texts.—R. S. Woodworth's fourth edition of *Psychology* (Holt) is widely welcomed. L. F. Shaffer and others offer a *Psychology* (Harper). R. W. Husband writes on *General Psychology* (Farrar & Rinehart). Many will appreciate M. J. Nelson's and E. C. Denny's *Practical Guide in Statistics for Teachers* (Dryden) which acquaints readers with terms and formulae without treating the mathematical derivations.

Theory.—*Current Psychologies* (Sci-Art) are discussed by A. J. Levine in terms of neurology, purpose, and gestalt. J. P. Guilford is editor of *Fields of Psychology* (Van Nostrand) with up-to-date discussions by experts. W. Köhler presents the latest gestalt theory in *Dynamics of Psychology* (Liveright). K. Goldstein approaches *Human Nature* (Harv. Univ.) from the view of a psychiatrist; at the same time he seeks a valid social philosophy.

SENSE PERCEPTIONS

Nature of Senses.—Is the "quantum" of sensory discrimination a resultant of neural change, or is there an external physical change which is the necessary increment in force to cause a conscious awareness of change? S. S. Stevens and J. Volkman show that the older notion of variability in psychophysical judgments can be restricted to the variability in two or three quantal increments (*Science,* Dec.). Sensory stimuli in vision and touch which are ordinarily unnoticed have a definite effect upon an individual's responses and are probably the source of many alleged telepathic or clairvoyant phenomena (*Psych. Monog.,* No. 236). The deep sensibilities of the body are more disturbed by brain lesions than are the lighter touch sensations (E. A. Weinstein and M. R. Bender, *Arch. Neurol. Psychiatr.,* Nov.).

Vision.—C. E. Ferree and G. Rand point out that the use of stereoptican projection of tests for vision aids the constancy of illumination and adaptation (*A. J. Ophthal.,* Nov.). M. Luckiesh and F. K. Moss find the ordinary mimeograph printing to be only 70 per cent as legible as the best stencilling (*Sight Sav. Rev.,* June). H. Helson and others find that hue, lightness, and saturation of colors depend on light energy and also on reflectance of the background and of all objects in the visual field, and also upon the adaptation-reflectance of the eye (*J. Exp. Psych.,* Jan.). The most effective colors for road signs in dim light are orange and then yellow; less effective in order are green, red, and blue; yellow and black form the best contrast (idem) (F. O. Smith). Color vision in chimpanzees, as tested by W. F. Grether, indicates that these animals do not clearly distinguish red and green; the conclusion is that primates are at an evolutionary level of color discrimination just below humans (*J. Comp. Psych.,* Apr.).

Hearing.—A. F. Niemoeller has a *Complete Guide for the Deafened* (Harvest House) which describes all aids and adjustments for deaf persons. E. G. Richardson has published a textbook on *Sound* (Longmans). The present status of auditory research is reviewed by F. Mettler who concludes that tonal analysis and organization occurs mostly in the peripheral end-organ rather than in the central nervous system (*J. Gen. Psych.,* Apr.). Rats can hear sounds varying from 100 to 16,000 vibrations a second; they are most sensitive around 7,000 vibrations whereas man is most sensitive at 2,500 vibrations (S. Dworkin and others, *J. Exp. Psych.,* Mar.). A new determination of the scale of pitch by S. S. Stevens and J. Volkman shows that it is not identical with frequency, because there is also a subjective feeling of an "extensive" relation between the size of intervals between changes in tone (*A. J. Psych.,* July). People are soon accustomed to scales composed of smaller intervals than those of the tempered scale, and the smaller intervals soon seem as large as ordinary steps (H. Werner, *J. Psych.,* Feb.).

Taste and Smell.—Rats have a threshold of sweet taste with a 7 per cent sugar solution as compared with a 17 per cent solution threshold in humans, according to C. P. Richter and K. H. Campbell who also found that rats prefer water to an alcohol solution exceeding 6 per cent (*A. J. Physiol.,* Apr.). The sense of smell in rats, as tested by R. L. French, can be used to train the animals in seven to 17 trials to distinguish odorless food from odors of wintergreen and quinine sulfate (*J. Comp. Psych.,* June). Females are more attracted to the odor of alcohol than are males—among fruitflies (P. Rau, *Quart. Rev. Biol.,* June).

Somatic Senses.—L. J. Stone and W. L. Jenkins have reviewed the past eight years of work on pain and temperature sensations (*Psych. Bull.,* May). Pains from gall-bladder ailments are referred to many different bodily locations; K. M. Davidson cites many cases (*Med. Rec.,* Jan.). Cold and warm nerve excitations are shown by F. N. Jones to have a different rate of propagation of action currents, indicating that these two senses have separate modalities (*A. J. Psych.,* Apr.). "Phantom limbs," experienced after amputation, seem to be produced by the muscle sensations from other muscles in "the balanced system of weights and levers" which constitute the remainder of the limb; the "phantom" in time becomes diminished in size and tends to disappear inside the stump; with 60,000 amputations in the World War the problem of subsequent unpleasantness is an insistent problem; one Civil War patient experienced a phantom for 56 years (S. Feldman, *ibid,* Oct.). G. Bekesy has found by experiment that there are special nerve endings for the sense of vibration located in the hair papillae (*J. Exp. Psych.,* Apr.). F. A. Geldard has demonstrated that the vibration sense persists after the pressure sense has become anesthetized (*J. Gen. Psych.,* Apr.).

AFFECTION

Emotion.—Emotions can assume the role of "substitute responses," according to H. S. Tuttle, and arouse fantasy in untrained persons; the physiological processes of emotion can not be trained; instead, one must educate their interests so as to secure desirable impulses, educate skills to assure efficiency, and thus forestall disruptive emotions (*ibid,* Jan.). By giving faradic stimulation to the hypothalamus in the cat emotional states of rage were aroused by E. Gellhorn and others; in testing the blood sugar in relation to severing the sympathetico-adrenal and vago-insulin connections it was shown that these systems are directly excited by the hypothalamus (*Science,* June). The frustration process is found in situations of emotion, tension, conflict, inhibition, regression and withdrawal; the reaction against these, according to S. H. Britt and S. Q. Janus, is aggression, guilt, remorse, resistance, embarrassment, all of which have a similar underlying neurological pattern (*Psych. Rev.,* Nov.).

Feeling.—R. Pintner and G. Forlano find that adults remember pleasant words better than unpleasant ones, but no such distinction is made in children's memory for words (*J. Soc. Psych.,* Jan.). L. I. O'Kelly and L. C. Steckle find much individual difference in the degree to which persons forget unpleasant experiences (*A. J. Psych.,* July). Humor and laughter both result from the mild shock character of their stimuli; both are enhanced in agreeable social surroundings; both cease if the shock is too great (*ibid,* Jan.).

Aesthetics.—The best liked portions of musical passages, if repeated, bring about a spread of the enjoyment to surrounding portions of the composition (H. K. Mull, *ibid,* Oct.). Response to music depends on mood, training, satiety, physical condition, age, intelligence, and conservatism; to the untrained taste the criteria of appreciation are merely pleasantness and unpleasantness, to the trained there is discrimination and understanding; age has the greatest effect on tastes (G. R. Rabson, *J. Gen. Psych.,* Apr.). C. E. Seashore finds that the emotions best interpreted in music are contempt, anger, fear, grief, and indifference (*Mus. Educ. J.,* Jan.). M. Schoen has written *The Psychology of Music* (Ronald). Certain geometrical forms are preferred because of associated meanings or the potentialities of designs for special uses or sometimes because of the purely formal character of the figures (E. N. Barnhart, *A. J. Psych.,* July).

THOUGHT

Reasoning.—M. Metfessel offers case evidence that in emotionally toned thinking one arrives at all-or-none conclusions and exhibits great positivism or complete rejection (*J. Psych.,* Apr.). Benzedrine has been widely used to stimulate mental activity; the accurate measurement of the amount of acceleration produced has been tested by T. G. Andrews on the speed and accuracy of syllogistic reasoning; he finds that a slight increase of efficiency results, but that it is probably not enough to compensate for the physiological disturbances which occur (*J. Exp. Psych.,* Apr.). Thinking reveals certain observable behavior: speed of immediate reorganization, effectiveness in reacting to cues perceptually present, effectiveness in reacting to cues hit upon during trial and error, ability to limit or restrict hypotheses, use of analysis based on past experience, versatility in setting up hypotheses, susceptibility to interference or blocking, susceptibility to perseveration; these criteria are followed through problems of thinking at various levels of difficulty (S. S. Sargent *Arch. Psych.,* June). In the development of abstract thinking there are four stages, says L. Welch: memory, motivation, discrimination and generalization; associations of the genus-species type are the first to develop (*J. Gen. Psych.,* Apr.). H. J. Baker offers a popular discussion of *The Art of Understanding* (Christopher).

Imagination.—Images can be aroused by conditioning stimuli in the same manner as are objective conditioned responses; C. Leuba hypnotized subjects, rang a bell, and pricked the hand, then during post-hypnotic amnesia when the bell was rung the subjects immediately reported stinging of the back of the hand (*J. Exp. Psych.,* Mar.). "Suggestibility" was objectively investigated by M. L. Reymert and H. A. Kohn who found this form of susceptibility decreases steadily from the age of five years (90 per cent suggestibility) to 20 years (17 per cent) (*Char. & Pers.,* Sept.).

RETENTION

Learning.—Two books of exceptional importance on the subject of learning have appeared during the year. E. R. Hilgard and D. G. Marquis, in their *Conditioning and Learning* (Appleton-Century), dissect thoroughly the recent developments in theory and experiment on modified behavior that results from sudden total organizations of insight and also from the gradual changes occurring in the conditioning process. C. L. Hull and others offer *A Mathematico-Deductive Theory of Rote Learning* (Yale Univ.) and make an impressive attempt to put the problem of learning on a basis of exact science both in terms of mathematical formulae and symbolic logic postulates. In a study of learning ability of college students, H. E. Garrett found that, while spaced practice is efficient for easier tests (such as symbol-digit and codes), massed practice gave better results for the harder test (artificial language) (*J. Exp. Psych.,* June).

Memory.—G. Katona introduces a gestalt interpretation of *Organizing and Memorizing* (Farrar & Rinehart). The span of an individual's memory is a general ability, as determined in a series of tests given by R. Brener; some persons depend more upon their verbal imagery and others upon visual imagery (*J. Exper. Psych.,* Apr.). H. B. Carlson and H. A. Carr found that some persons excel in rote memory and others in logical memory; this difference should be considered in the choice of a vocation (*ibid,* Feb.).

PHYSIOLOGICAL

Action.—Studying skill, R. H. Seashore has shown that a given group of muscles is not uniformly skilled for different kinds of actions, but different groups of muscles (*e.g.* hands and feet) show a high degree of correlation; thus skill depends on "functional" rather than "anatomical" organization (*A. J. Psych.,* Jan.). When tibialis, extensor and gastrocnemius muscles in a rat's hind foot were transposed the rat's leg movements were reversed and never readjusted afterward even when that particular limb was the sole means for orienting the animal (R. W. Sperry, *J. Comp. Neurol.,* Dec.).

Nerve Reaction.—Salivary flow is copious during mental work in the introvert, and decreases in the extrovert (Bernreuter test); it decreases during eye-strain (A. L. Winsor and B. Korchin *J. Gen. Psych.,* Jan.). Nervous disturbances of the heart may possibly be curable by reconditioning if the original stimulus arousing disturbed heartbeat is preceded by another stimulus producing vagotropic slowing of the heart (D. C. Beier, *J. Exp. Psych.,* Mar.).

Electrical Responses.—E. Jacobsen has developed an action potential inegrator which presents a picture of the manifold responses in an individual at a given period of time (*A. J. Psychiatr.*, Nov.). A review of the experimental findings on "brain waves," electroencephalography, by P. A. Davis indicates that even the diagnosis of personality can be made by observing the degree of stability of the fluctuations (*A. J. Orthopsychiatr.*, Oct.). D. B. Lindsley finds that electric brain potentials in the two hemispheres vary with each other according to the type of handedness of the individual; they are especially out of phase in ambidextrous individuals (*J. Exp. Psych.*, Feb.).

Bodily States.—How much can be told about human nature by a person's external appearance? One of the best answers to this query is given in several current numbers of the *Quart. Rev. Biol.* in articles by W. B. Tucker and W. A. Lessa on "Man: A Constitutional Investigation." Similar information is found in the book by W. H. Sheldon and others on *The Varieties of Human Physique* (Harper) in which it is estimated there are from 343 to 777 possible bodily types among humans. Children who are allergic to skin conditions show more extroversion and emotional instability than non-allergic children (B. F. Riess and O. de Cillis, *J. Abn. Soc. Psych.*, Jan.). S. Brock has edited a handbook on *Injuries of the Skull, Brain and Spinal Cord* (Williams & Wilkins).

DRUGS

Insulin-Shock.—A good review of insulin-shock and metrazol treatments of schizophrenia is given by W. C. Shipley and F. Kant (*Psych. Bull.*, May). Insulin in sub-shock doses may be a cure for delirium tremens, according to G. W. Robinson (*A. J. Psychiatr.*, July). Insulin shock treatment possibly should not be accompanied by injections of adrenalin (W. Furst, ibid, Sept.).

Alcohol.—E. M. Jellinek and R. A. McFarland have outlined the psychological experiments on the effect of alcohol: the clinical studies are mainly psychiatric; the purely psychological tests have been concerned with chronaxy, reflexes, sensations, perception and attention, reaction-time, muscular strength and coordination, tests of skill, learning, memory, associative functions, judgment, reasoning, intelligence, volition, emotion and personality. The outline appeared in the new periodical, *The Quarterly Journal for the Study of Alcohol,* first issued in 1940. E. Davidoff and C. A. Whitaker classify the prepsychotic personality traits of alcoholics mainly under the headings of introversion and immaturity (*Quart. J. Psychiatr.*, Apr.).

Morphine.—In studying morphine addiction in chimpanzees S. D. S. Spragg has made valuable clinical discoveries useful in treatment of human addicts (*Comp. Psych. Monog.*, No. 79). Morphine injections, observed by R. R. Brown, cause a mixture of exciting and depressing effects in the central nervous system so that reports of conscious experience are highly variable, a fact which must be realized in the treatment of the drug (*J. Gen. Psych.*, Apr.). D. Slaughter and others believe that a new cure for morphine addiction may be found in dosages of prostigmine methylsulphate (*J. A. Med. Assoc.*, Oct.).

Hormones.—Injections of the hormone, testosterone, have been used to reduce morbid degrees of sexual craving (*A. J. Psychiatr.*, Nov.).

ABNORMAL

Principles.—A synthesis of the gestalt interpretation and the psychoanalytic approach are to be found in J. F. Brown's *The Psychodynamics of Abnormal Behavior* (McGraw-Hill). A. H. Maslow and B. Mittelmann have written *Principles of Abnormal Behavior* (Harper). In his work, *Beyond the Clinical Frontiers* (Norton), E. A. Strecker shows the similarity of many kinds of social group behavior to the behavior of unsagacious neurotics. Among the biographies of the late S. Freud is C. P. McCord's thoughtful estimate, "Freud—The Man" (*Psychiatr. Quart.*, Mar.).

Schizophrenia.—Perhaps schizophrenia can be diagnosed according to personality-stratifications of somatic, vital, and psychological levels, the latter type exhibiting greater psychomotor activity and greater abstraction of ideas; the other types are mixed with various neuroses (O. Kant, *A. J. Psychiatr.*, Sept.). W. L. Bruetsch cites cases of schizophrenia which seem to have been caused by a condition of chronic rheumatic brain disease (idem).

New Problems.—At the annual meetings of the American Psychiatric Association in Cincinnati in May the topics of timely interest included "the psychopathology of the hit-and-run driver" (L. S. Selling who finds 5 per cent of general traffic offenders are neurotic, and finds alcohol a more frequent factor than is claimed by the National Safety Council); "the psychiatry of old age" (F. J. Braceland); "clinical study of sleep disturbance" (B. C. Schiele). W. A. Bousfeld concludes that sleep is better in those who feel greater pleasantness and euphoria during waking hours (*J. Psych.*, Apr.). Psychosis caused by hardening of the arteries in the brain was seen in 100 cases to accompany a history of kidney disease and a family history of tense, nervous relatives (H. E. Clow, *A. J. Psychiatr.*, July).

Therapy.—L. F. Barker describes the methods of *Psychotherapy* (Appleton-Century) as they can be used in schools and social groups. Both technical and common sense information is given in M. E. Ingram's convenient *Principles of Psychiatric Nursing* (Saunders). The "techniques of therapy" in neuroses are discussed in the symposium by F. Rosenheim and others (*A. J. Orthopsychiatr.*, Oct.).

Psychoanalysis.—Particular interest will be felt by many students of psychoanalysis in having an opportunity to read the reactions given by prominent psychologists, such as E. G. Boring, C. Landis, and J. F. Brown who underwent regular psychoanalytic treatments (*J. Abn. Soc. Psych.*, Jan. and Apr.).

SOCIAL

General.—C. Bird's *Social Psychology* (Appleton-Century) depends largely upon experimentally derived facts, whereas O. Klineberg's *Social Psychology* (Holt) draws mainly upon social anthropology and psychoanalysis. S. H. Britt furnishes a review of current social psychology showing the rise of clinical techniques and leadership techniques (*Psychologists League J.*, Jan.). *The Plans of Men* (Yale Univ.) by L. Doob estimates the relative frequency of various motivations among human groups. In reviewing the literature on sex differences, W. B. Johnson and L. M. Terman conclude that definite mental and emotional differences exist on a physiological basis and not merely on cultural prejudices (*J. Psych.*, Apr.).

Public Opinion.—Representative literature on the subject of "public opinion" includes J. Franklin's *1940* (Viking), H. L. Child's *An Introduction to Public Opinion* (Wiley), C. B. Rose's *National Policy for Radio Broadcasting* (Harper), C. D. McDougall's *Hoaxes* (Macmillan), G. Gallup and S. F. Rae's *The Pulse of Democracy* (Simon and Schuster), and P. F. Lazarsfeld's *Radio and the Printed Page* (Duell, Sloan & Pearce). H. Cantril's book, *The Invasion from Mars* (Princeton Univ.), is a volume of social research upon the reactions to the famous broadcast of October, 1938; the uncritical elements in the average human mind are revealed in this study.

Marriage.—*Your Marriage* (Farrar & Rinehart) by N. E. Himes deals with many practical questions such as consumer guidance, sex adjustments under many circumstances; young marriages are recommended. The veteran authorities, E. R. and G. H. Groves, offer another book: *Sex in Marriage* (Emerson).

Mental Hygiene.—D. M. Griffin and others have published *Mental Hygiene* (American Book) which stresses schoolroom problems. Religion makes various contributions to mental health, as described by S. Hiltner, who shows the opportunity for social adjustment given by religious organizations (*Ment. Hyg.*, July). In a survey from the Children's and Adolescent's Ward at Bellevue Psychiatric Hospital, F. J. Curram and P. Schilder have constructed genetic, organic, social, and gestalt approaches to the treatment of youthful case studies (*J. Crim. Psychopath.*, Oct.). There is need in American universities for chairs of criminology and also for crime consultation centers in civic communities, declares J. L. Moir; the consultation centers should include instruction for youths in social problems, *e.g.* sex, and also advisory bureaus for unadjusted adults (*Medico-Legal & Crim. Rev.*, Apr.). Cases of "wild men" and humans experiencing extreme isolation have been reported for centuries; R. M. Zingg has tabulated and critically evaluated all these reports and concludes that much of what we call "mind" and "personality" are products of social tradition (*A. J. Psych.*, Oct.).

PERSONALITY

Measurement.—Reformatory inmates exhibit mainly the schizoid type of personality (Bernreuter's test) and show a psychotic lack of realism rather than psychoneurotic tendencies (*J. Genet. Psych.*, Mar.). K. Young's *Personality and Problems of Adjustment* (Crofts) stresses the social background of adjustment problems rather than a close analysis of individual persons. H. D. Link's recent "Personality Quotient" test has received a nationwide validation according to S. Roslow; the test measures social initiative, self reliance, economical self reliance, and adjustment to the opposite sex (*J. Appl. Psych.*, Oct.). M. Trawick tested the consistency of personality as measured by confidence, esteem, dominance intelligence, social insight, projectivity, etc., and found the best indices of trait consistency to be (1) self-confidence, (2) insightfulness, (3) objective modesty, and (4) goal seeking (*Arch. Psych.*, Apr.).

THE CHILD

Problems.—A. T. Jersild offers the latest *Child Psychology* (Prentice-Hall). H. L. Witmer believes that *Psychiatric Clinics for Children* (Commonwealth Fund) should emphasize the present mental health of their young patients rather than to anticipate contingencies in the future development of the children. Again the difference between clinician, teacher, and parent in rating the degree of seriousness of child misbehavior shows that clinicians judge behavior in terms of the effects on the individual's personality whereas parents and teachers judge behavior according to social consequences (*J. Abn. Soc. Psych.*, Jan.). A systematic analysis of young children's play will give a fairly reliable picture of their personality, according to J. L. Despert, who noted the degree of dramatization, affection, number of roles assumed, and aggression in doll and drawing play situations (*J. Psych.*, Jan.). Among the emotional problems of adolescence C. B. Zachary finds a conflict of desire to grow up and yet remain in childhood (*Bull. Menninger Clin.*, May). Zuni Indian children answered Piaget's set of questions to analyze childish thought with all the usual categories found among children of more strictly educated races (*Child Dev.*, Sept.). School children worry most about poor report cards and about not finding a job after leaving school (R. Pintner and J. Lev, *J. Genet. Psych.*, Mar.).

Intelligence.—In *The Psychology of Exceptional Children* (Ronald) K. C. Garrison considers both gifted and retarded children and offers a good introduction to this field. M. E. Frampton and H. G. Rowell have edited a book, *Education of the Handicapped* (World Book). Are prematurely born children afflicted mentally? A. L. Benton reviews numerous cases and concludes that children may be retarded for about two years, but not permanently; they are not more likely than other children to develop nervous traits (*A. J. Orthopsychiatr.*, Oct.). An exceptionally thorough review of the nature of mental deficiency by the veteran authority, E. A. Doll, indicates that the feeble minded must be regarded in terms of social inadequacy in some cases and in terms of mental inadequacy in others; also a distinction should be made between occupational incapacity and inaptitude (*Psych. Rev.*, Nov.). Feeble minded children are deficient in their ability to judge visual space; H. Werner also finds that among normal children there is a positive relation between arithmetic test and performance on spatial relations tests (*J. Genet. Psych.*, Sept.). In considering the stability of the I. Q. one must consider the stability of the individual's environmental influences (J. A. Gengerelli, *A. J. Psych.*, Oct.). B. R. Simpson discusses "the wandering I. Q." and supports its constancy in agreement with the users of the Stanford Binet tests (*J. Psych.*, Jan.).

COMPARATIVE

Animals.—C. J. Warden and others offer Volume II of their *Comparative Psychology* (Ronald): on plants and invertibrates. Young rats show almost ten times greater hunger drives (across an electric shock obstruction) than do adult animals, and five times more than post pubescent rats (S. E. Margolin and M. E. Bunch, *Comp. Psych. Monog.*, Oct.). C. A. Brogden finds that conditioned leg reflexes in dogs are well retained over a six-month period, but salivary conditioned responses are poorly retained and quickly extinguished (*A. J. Psych.*, Apr.). Monkeys showed immediate imitation from visual cues in 75 per cent of their tests in which they watched other monkeys escape from experimental cages; both the cebus and rhesus monkeys demonstrated this capacity (C. J. Warden and others, *J. Genet. Psych.*, June). Ants have been observed by L. F. Lafleur to capture and punish other offending ants; there appears to be a degree of delayed response or accumulation of aggravation which indicates ideational activity (*J. Comp. Psych.*, June).

APPLIED

New Fields.—A survey of "the field of applied psychology" is given by R. Berdie who cites a number of new fields in which psychologists are now employed (*J. Appl. Psych.*, Oct.).

Business and Industry.—J. D. Weinland has compiled a *General Psychology for Students of Business* (Crofts). G. W. Hartmann and T. Newcomb offer a psychological interpretation of *Industrial Conflict* (Cordon). In "job satisfaction" the importance of personality, temperament, and other intangibles should be recognized, according to R. Hoppock and C. L. Odom (*Occup.*, Jan.). Seidman and G. Watson investigating "satisfaction in work" among high school graduates found that for 15 per cent of them no job was interesting and for 25 per cent all jobs were interesting (*J. Consult. Psych.*, Feb.).

Vocational Tests.—An important duty in a modern democracy is to fit each man to the job for which he is best suited. T. L. Kelly suggests in his monograph, *Talents and Tasks* (Harv. Educ. Papers), that aptitude tests of social utility be added to other measures of applicants. Unemployed persons do not evolve different attitudes according to the length of time that they have been out of work; instead, there are great individual differences among these persons; thus the employer need not make a rule about the length of unemployment; the attitudes of older unemployed are more stable than younger workers (A. C. Tucker, *Arch. Psych.*, Feb.). Vocational interests, as revealed by the Strong Vocational tests, change considerably during three years of college because of the rise of new prospects appearing from out of the college work; thus, it is recommended that a student be offered a flexible curriculum so as adjust himself to these new interests (A. C. VanDusen, *J. Educ. Psych.*, Sept.).

PHILOSOPHY

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GENERAL

A general survey of philosophical trends during 1940 indicates a natural increase in interest in social philosophy, in particular in the philosophy of democracy, and in the history of American Philosophy.

In the many books and articles appearing during the year on the subject of democracy, the attempt has been made for the most part to present the theory of democracy in a "philosophical" or "scientific" manner. Democracy is not something divine and irreproachable; its value only arises through a careful analysis and criticism. Examples of such analyses of the democratic concept appearing during 1940 are Sidney Hook's *Social Myths, and Democracy* (John Day Co.), a comparison of the democratic theory with the Marxist and Fascist; C. S. Worborg's *From Plato to Hitler,* democracy approached through the philosophy of history; W. C. Phillips's *Adventuring for Democracy* (Social Unit Press); E. J. Godspeed's *Four Pillars of Democracy* (Harper); E. L. Bernays's *Speak Up for Democracy* (Viking), and T. V. Smith's *The Legislative Way of Life, The Democratic Way of Life* (Univ. of Chicago Press). A book concerned with both the concept of democracy and the history of American social philosophy is R. H. Gabriel's *The Course of American Democratic Thought* (Ronald), which, in answering the question "What have Americans meant by Democracy?", gives an account of American democratic thought since 1815.

The appearance of W. G. Muelder's and L. Sears's *The Development of American Philosophy* (Columbia Univ. Press) is but one indication of the growing interest in our philosophical heritage. The volume consists of a series of readings in American Philosophy, beginning with Edwards and including many of the contemporary philosophers. Anderson and Fisch's *Philosophy in America from the Puritans to James* (Appleton-Century) is another excellent view of the evolution of American philosophical thought through selections.

The Eastern Division of the American Philosophical Association, at its winter meeting in December, 1939, held two symposia on the American philosophers Charles Sanders Peirce and John Dewey. The papers on Peirce were by Hill, Weiss, and Hartshorne; the symposia on Dewey consisted of papers by Montagne, Cohen, and Hocking. Vols. 1 and 2 of the Library of Living Philosophers (Northwestern Univ. Press, edited by P. A. Schlipp) have appeared—*The Philosophy of John Dewey* and *The Philosophy of George Santayana.* The Modern Library brought out in 1940 the complete essays and other writings of Ralph Waldo Emerson.

Besides these indications of research into the American philosophic tradition, there have appeared numerous articles on various other philosophers, e. g., Tufts on "Edwards and Newton" (*Phil. Review,* 44, pp. 609-622), Monsman on "Royce's Conception of Experience and of the Self" (*Phil. Rev.,* 44, pp. 325-345), Gross's "Whitehead's Philosophy of Adventure" (*American Scholar,* Vol. 9, pp. 361-371).

Important philosophical events during the year were the appearance of three new journals, *Philosophical Abstracts,* devoted to brief summaries of articles and books on all phases of philosophy; *Philosophy and Phenomenological Research,* the official organ of the International Phenomenological Society, whose aim is "to further the understanding, development, and application of phenomenological inquiry as inaugurated by Edmund Husserl"; and the *Journal of the History of Ideas,* devoted to the intellectual history of mankind ("Reflections on the History of Ideas" are given by the editor, A. O. Lovejoy, in Vol. 1, pp. 3-23).

GENERAL WORKS

Brand Blanshard's *The Nature of Thought* (Macmillan, 2 vol.) begins with an examination of the theory of perception and leads by natural steps to the general theory of truth, Blanshard upholding the coherence theory. It is evidently the result of a lifetime of thought, study, and conversation in the field of philosophy. Another lifetime work is A. Makrakis's *The New Philosophy and the Philosophical Sciences* (Putnam, 2 vol.), recently translated into English. Another result of long philosophical contemplation, a last word, is the late F. J. E. Woodbridge's *An Essay on Nature* (Columbia Univ. Press). Finally, the culminating volume of a lifetime of philosophical writing is George Santayana's *The Realm of Spirit* (Scribners), the fourth and final volume in the series on the Realms of Being.

Works appearing on philosophy in general were W. P. Montagne's *The Ways of Things* (Prentice Hall), a series of essays dealing on traditional metaphysics and religion in the light of modern problems, A. Laplan's *The Purpose of Philosophy* (Phil. of Science, Vol. 7, p. 18-28), L. Wood's *Inspection and Introspection* (Phil. of Science, 7, pp. 220-228), and D. W. Gotshalk's *Metaphysics in Modern Times* (Univ. of Chicago Press).

HISTORY OF PHILOSOPHY

General.—Before proceeding to a consideration of the material in the history of philosophy three contributions of general significance may be noted. A presentation of philosophy as a whole is to be found in John J. Rolbiecki's *The Prospects of Philosophy* (Benziger Bros., N. Y.). Two excellent guides to philosophical literature have also been published, *A guide to Readings in Philosophy* (Univ. of Pittsburgh) by R. Hope, and "A survey of Recent Philosophical Literature" by G. D. Hicks (*Hibbert Journal,* 38: 401-408, April '40).

Greek Philosophy has gained two much needed source books, Gordon H. Clark's *Selections from Hellenistic Philosophy* (Crofts), and W. J. Oates' *Stoic and Epicurean Philosophers* (Random House). In addition there are many articles covering a variety of points, *e. g.* "The Unity of Plato's Philebus" (*Class. Philol.,* 35: 154-79) by I. W. Isenberg; and *Plato's Law of Slavery in its relation to Greek Law* (published late in 1939 by the University of Illinois) by Glen Morrow. Benjamin Farrington discusses the inhibitory effect of Greek politics, religion, and tradition on scientific inquiry in *Science and Politics in the Ancient World* (Oxford Univ. Press).

Medieval and Renaissance.—The continued interest in medieval philosophy is indicated by the activity of the scholars in this field. The first volume of *Medieval Studies,* published for the Institute of Medieval Studies by Sheed and Ward, contains researches of the Institute too short for a book. E. Gilson, George Phelan, and F. P. McLaughlin are among the contributors. As might be expected interest centers about Thomas Aquinas. Walter Farrell, O. P. has completed the third volume of *A Companion to the Summa; The Fullness of Life* (Sheed and Ward). This condenses, paraphrases, and illustrates with modern examples IIa and IIae of the *Summa Theologica.* The Catholic University of America has printed *The Letter of St. Thomas Aquinas, "De ocultis operibus Miletum ultramontanum."* The significance of an early essay in the struggle between the Augustinian tradition and the Aristotelian is shown in *The Problem of Matter and Form in the "De Ente et Essentia" of Thomas Aquinas* (Harvard Univ. Press), by John D. M. Goheen. Two other problems are treated constructively: B. J. Campbell on *The Problem of One or Plural Substantial Forms in Man as found in the works of St. Thomas Aquinas* *and John Duns Scotus.* (Univ. of Pennsylvania, St. Anthony's Guild Press) and Sister Mary Camilla Cahill on the *Absolute and the Relative in St. Thomas and Modern Philosophy* (Catholic Univ. of America). Of course there is *The Problems for Thomists* (Sheed and Ward), by Mortimer Adler. He has also translated Jacques Maritain's *Scholasticism and Politics* (Macmillan). Other contributions to Medieval Philosophy include Ludwig Schopp's juxtalinear translation of *The Happy Life* (Herder Book Co., St. Louis), A. C. Outler "Platonism of Clement of Alexandria," (*J. Relig.* 20: 217-40 J1 '40.), and Bernard Muller-Thym, *The Establishment of the University of Being in the Doctrine of Meister Eckhart of Hochheim* (St. Michael's Medieval Studies monograph series, Sheed and Ward). J. O. Riedl has completed a *Catalogue of Renaissance Philosophers* (Marquette Univ. Press) which treats chronologically more than 600 philosophers. Charles E. Frinkhaus' *Adversity's Noblemen* (Columbia Univ. Press) also falls in this division for it considers the Italian Humanists on Happiness.

Modern Philosophy.—David Bidney in the *Psychology and Ethics of Spinoza* (Yale Univ. Press) indicates that Spinoza's greatest contribution to philosophy was the fact that he posed the fundamental problems and attempted to synthesize other philosophical traditions. Longmans, Green and Co. have published three very satisfactory volumes; *Montesquieu and English Politics* by F. T. H. Ketcher, and two readings, *The Living Thoughts of Pascal,* ed. Francois Mauriac, and *The Living Thoughts of Kant* ed. by J. Benda. T. V. Smith and M. Grene have also edited a selection of readings in the Renaissance to the Enlightenment entitled *From Descartes to Kant* (Univ. of Chicago Press). The social emphasis is represented by M. Eastman's *Marxism, Is it a Science?* (Norton), H. P. Adams, *Karl Marx in his Earlier Writings,* and J. S. Bixler's article in the *American Scholar* (9 No. 3: 437-38, Oct. '40), "The Background for Hitler in German Thought."

PERCEPTION THEORY

Philosophers and psychologists still meet on the common ground of perception theory, so that most works in this field have both a philosophical and psychological import. Works in this field appearing during the year were Köhler's *Dynamics in Psychology* (Liveright), L. W. Beck's "The Psychophysical as a Pseudo-Problem (*Journal of Philosophy,* 37, pp. 561-571), F. R. Bichowsky's "Factors Common to the Mind and to the External World" (*Journal of Philosophy,* 37, pp. 477-484), A. G. Ramsperger's "Objects Perceived and Objects Known" (*Journal of Philosophy,* 37, 291-297), J. Loewenberg's "What is Empirical?" (*Journal of Philosophy,* 37, 281-289), A. Ushenko's "A Theory of Perception" (*Journal of Philosophy,* 37, 141-151), and a discussion between C. J. Ducasse and R. W. Church on resemblance, (*Phil. Review,* 44, pp. 641-662).

LOGIC

One of the important works in the field of symbolic logic during the year was W. V. Quine's *Mathematical Logic* (Norton) which is partially an up-to-date summary of the movement initiated in logic by Frege and Russell, partially a contribution to the field itself. An application of the symbolic method to psychological problems appears in *Mathematico-deductive Theory of Rote Learning* (Yale Univ. Press) by Hull and others, and to aesthetics in Harris's "Symbolic Logic and Aesthetics" (*Journal of Philosophy,* 37, pp. 533-546).

Some of the discussions on particular problems of logic were (a) "Elimination of Extra-Logical Postulates" by Quine and Goodman (*Journal of Symbolic Logic,* 5, pp. 104-109) on the subject of postulational-technique, (b) "Postulates for the Calculus of Binary Relations" by McKinsey (*ibid,* vol. 5, 85-97) on the calculus of relations as treated by Peirce and

Schroeder, and (c) "A Formulation of the Simple Theory of Types" by Church (*ibid,* vol. 5, pp. 56-68) on the logical antinomies.

In the field of non-mathematical logic, Ducasse, in "Concerning the Status of So-called 'Pseudo-Object' Sentences" (*Journal of Philosophy,* 37, pp. 309-324) discusses and criticizes Carnap's claim that all philosophical problems are problems of syntax, Lazerowitz's "Self-Contradictory Propositions" (*Philosophy of Science,* 7, pp. 229-240) criticizes Russell's definition of proposition, Hartman asks "Are There any Extra-syllogistic Forms of Reasoning?" (*Proc. of the Amer. Catholic Phil. Assoc.,* 15, pp. 235-241) and decides "no" if the syllogism is slightly modified, Baylis indicates "How to Make our Ideas Clearer" (*Journal of Philosophy,* 37, 225-232) by a "functional method," and Sisson discusses the No Man's Land between Logic and Language in "Relation in Reality and Symbolism" (*Phil. of Science,* 7, pp. 342-354).

New logic texts of the year were Holmes's *Exercises in Reasoning, with an Outline of Logic* (Appleton-Century) and Churchman's *Elements of Logic and Formal Science* (Lippincott).

PHILOSOPHY OF SCIENCE

An indication of the ever growing interest in the Philosophy of Science is the appearance of another textbook devoted solely to the subject, W. H. Werkmeister's *Philosophy of Science* (Harper).

Attempts to clarify the problems of the philosophy of science by a discussion of the concept of science and its relation to philosophy appear in Lee's "Philosophy and Science" (*Phil. of Science,* 7, pp. 7-17) where philosophy is defined as the quest for clear understanding, science the quest for predictability, in Bridgman's "Science: Public or Private (*Phil. of Science,* 7, pp. 36-48) where it is decided that science has some "private" elements, in Ducasse's *Philosophy and Natural Science,* where Philosophy is defined as the science of (introspective) mind, and in Swann's discussion of "Scientific Theories" (*Phil. of Science,* 7, pp. 273-287).

The relation between the old philosophical problems and the "new" scientific ones still demands a great deal of attention; the positivist views on this question are discussed by Bushkovitch in "Some Consequences of the Positivistic Interpretation of Physics" (*Phil. of Science,* 7, pp. 97-102); Kaiser discusses "The Consequences for Metaphysics of Quantum Mechanics" (*Journal of Philosophy,* 37, pp. 337-348) and Riezler the general question of *Physics and Reality* (Yale Univ. Press).

The general problem of scientific method is still far from settled among philosophers; Sharpe, in "A Critical Analysis of the Canon's of Science" (*Phil. of Science,* 7, pp. 159-167) believes that there is only one canon, Mill's Method of Concomitant Variations; Hart suggests a change in Stevens's operationism in "Operationism Analysed Operationally" (*Phil. of Science,* 7, pp. 288-313), Creed criticizes Reichenbach's "Justification of the Habit of Induction" and is answered by Reichenbach (*Journal of Philosophy,* 37, pp. 85-103).

Malisoff continues his series of articles on philosophy and science by giving answers to the questions "What is a Monad?" (*Phil. of Science,* 7, pp. 1-6), "What is Insight?" (*ibid,* 7, pp. 135-139), and "What is Freedom?" (*ibid,* 7, pp. 265-272).

More tribute was paid in 1940 to one of the founders of the Philosophy of Science, C. S. Peirce, in Nagel's "Charles S. Peirce, Pioneer of Modern Empiricism" (*Phil. of Sci.,* 7, pp. 69-80), Weiss's "The Essence of Peirce's System" (*Journal of Philosophy,* 37, pp. 253-64), Goudge's "Peirce's Treatment of Induction" (*Phil. of Science,* 7, pp. 56-68), and Hell's "Peirce's Pragmatic Method" (*Phil. of Science,* 7, pp. 167-181).

The special problem of the vitalist-mechanist paradox still demands the attention of the philosopher of biology; it is discussed by Macintosh in "Responsibility, Freedom, and Causality" (*Journal of Phil.,* 37, pp. 42-50), by Bergman in "On Physicalistic Models in Non-Physical Terms" (*Phil. of Science,* 7, pp. 151-158), Lillie, in "Biological Causation" (*Phil. of Science,* 7, pp. 314-336), and a resolution of the antinomy is given by Singer in "An Application of Modern Logic to a Problem of Natural Science" (delivered at a symposium of the University of Penna. Bicentennial Celebration) by showing that the mechanist and vitalist positions are not contradictories, but contraries, and that a third position is tenable.

The phenomenological (Husserlian) attitude towards the philosophy of science is expressed in a series of articles appearing in the first number of *Philosophy and Phenomenological Research,* e. g., F. Kaufman's "Truth and Logic" and L. Landgrebe's "The World as a Phenomenological Problem."

AESTHETICS

There has been a well defined trend in aesthetics, as compared with the previous year, to neglect the experimental aspect of aesthetics and to consider the relation of aesthetics to unaesthetic factors and to fine art more closely. William J. Norton's "Modern Art and Social Responsibility" (*Journal of Philosophy,* 37, pp. 325-332) illustrates the first point by urging a synthesis of the two views—art for art's sake and art for virtue's sake. Marjorie Harris, interested by some remarks of Whitehead, makes an original contribution in her article, "Symbolic Logic and Esthetics," (address before Southern Society for Philosophy and Psychology, Tulane U.); and Otis Lee, "Instrumentalism and Action" (*Journal of Philosophy,* 37, pp. 57-75), considers the relation of art and science.

The necessary interdependence of aesthetic theory and fine art, sometimes forgotten, is beautifully shown by *A Bryn Mawr Symposium* (Bryn Mawr College), (R. Bernheimer, Carpenter, Koffka, K., and Milton Nahm); Philosophy and Fine Art are discussed by men of widely differing interests. Louis Flaccus's *Spirit and Substance of Art* (Crofts) has been revised and amplified, especially by many new plates.

This tendency is also illustrated by G. W. Beiswanger in the "Esthetic Object and the Work of Art," (*Phil. Rev.* 47: 587-605). More distinctly philosophical in orientation is Robert C. Baldwin's article, "The Meeting of Extremes in Recent Esthetics" (*Journal Phil.* 37: 348-58), and T. L. Shaw's *Art's Endurance* (Humphries Inc.) which insists that the persistence of pleasure in art is due to its "rareness."

No discussion of the works in aesthetic in 1940 would be complete without mention of T. M. Greene's *The Arts and Art of Criticism* (Princeton Univ. Press). The author explores the ground between art and philosophy in order to establish a basis for philosophical theory and for the evaluation of art.

ETHICS

There was considerable activity in this field during 1940, especially in the journals. Contributions may be viewed roughly as analytical or constructive. There are two excellent contributions to the treatment of the historical moralists: H. H. Schroeder's article on "Some Common Misinterpretations of the Kantian Ethics" (*Phil. Rev.* 49. 424:-46) is directed against the view that the Kantian ethics is subordinate to the other phases of the system, that it is formal and lacks content, and that it lacks practicability; William J. Norton's *Bishop Butler* worthily inaugurates the Rutgers University Studies in Philosophy. Traditional problems have been treated with new insight and a demand for a more exact vocabulary in ethics. S. S. Browne in "Does Freedom Entail non-Predetermination" (*Phil. Rev.* 571-576) answers us, and bases his argument on an analysis of the terms. C. Morgan, Jr. in an article entitled "Selfishness and Unselfishness" (*J. P.* 37, 401-407) believes these terms should be dropped from ethical discussion. The psychological emphasis is found in *Human Nature and the Nature of Evil* by C. P. Skinner, (Universalist Publishing House), R. W. Pickford's "Ethics and Instinct" (*Ethics 50:* 379-401. Jl. 40), and the privately printed *Animal Nature of Man* by A. M. Aurand. J. M. Anderson's article, "Realism and the Ethical Paradoxes" (*J. P.,* 37, pp. 571-579).

Under the heading of constructive ethical thought there is found a further division according to whether the writer's approval is distinctively philosophical (usually empirical) or social. Illustrating the former there is R. E. Fitch on "An Experimental Critique of Rationalist Ethics" (*J. P.,* 37, 365-375) and F. C. Sharp's review of Ethics, "Ethical Empiricism and Moral Heteronomy" (*Phil. Rev.* 49; 447-53 Jl 40). "Law and Norm in Ethics" (*Ethics 50:* 450-6 Jl '40) is a comment on the Ethics of Logical Positivism. J. A. Clarke wrote two articles, "Intuition and Criticism in Ethics" (*J. P.* 546-555) and "An Ethical Objective Relativism" (*Phil. Rev.* Sept. '40, 515-535). The latter proposes that every ethical judgment is a partial proposal in what is here and now the reasonable thing to do. This later article resembles C. B. Garnett's *Wisdom in Conduct, An introduction to Ethics* (Harcourt, Brace), which emphasizes the significance of prudence. The development from individual to social regard, noted at the beginning of this section, is found both in P. B. Rice's "Two meanings of Liberty" (*J. P.,* 37, 376-382) and M. H. Thompson's comment upon it "Individualist and Collective Liberty" (*J. P.,* 37, 382-83). J. W. Hudson discusses the trend from individualism to social regard in "Recent Shifts in Ethical Theory and Practice."

PHILOSOPHY OF RELIGION

The publications in this field are not so numerous but they are marked by their excellence. E. S. Brightman's *Philosophy of Religion* (Prentice Hall) not only surveys the chief issues, *e. g.* the conception and knowledge of God, religious values, but also concludes with a chapter on the external criticism of religion. Harper and Brothers published *Experience, Reason and Faith;* this is a survey in Philosophy and Religion by E. G. Bewkes, H. B. Jefferson, E. Taylor Adams, and H. A. Brantigam.

ANTHROPOLOGY AND ETHNOLOGY

BY DOUGLAS LLEWELLYN OLIVER

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GENERAL

The dislocation of ordinary academic pursuits occasioned by repercussions of the European War and the exigences of defense have caused most anthropologists to reappraise their activities and point them more towards practical applications. This changed position was exemplified by the program of the annual meeting of anthropologists in Philadelphia, wherein discussions usually devoted to theory were replaced by seminars on "Anthropology and Modern Life," and "The Role of Anthropology in the Development of Cultural Relations with South America." At the same time, many institutions have redoubled their efforts to carry on routine research because of the realization that unless American scientists do so, then such research will cease entirely.

SOCIAL ANTHROPOLOGY

Advances in social anthropological theory and method were made along four separate fronts during 1940. The greatest single impetus came from administrators interested in applying the "culture as a whole" concept to immediate problems of rehabilitation.

M. L. Wilson, Director of Extension in the Department of Agriculture, continued his efforts to educate agricultural officers to think along anthropological lines. And John Provinse, anthropologist of the Department of Agriculture, organized a series of community studies which should eventually provide adequate samples of rural life, to be used by administrators dealing with agricultural rehabilitation.

F. L. W. Richardson, Jr. of Harvard continued his study of the Penncraft Resettlement project in a depressed coal mining area of western Pennsylvania. Preliminary reports from Richardson indicate that valuable contributions to this kind of study can be made by applying methods of Human Geography in conjunction with those of Social Anthropology.

The second important advance to the subject was made in the field of theory. A publication by E. D. Chapple of Harvard, "Measuring Human Relations: An Introduction to the Study of the Interaction of Individuals" (Genetic Psychology Monographs 22; Provincetown: *Journal Press,* 1940) demonstrated that human relations can be studied objectively, and that the data can be handled quantitatively. Chapple's concept of social equilibrium and of functional—in the mathematical sense—interrelationships attracted the attention of many students, who set about collecting corroborative evidence from such diverse fields as social interaction and brain waves, observations upon order of dominance in races of rats, observation of interaction rates of neurotics, and studies in communities and industrial plants. Significant contributions to the whole field of human relations can be expected from further application of Chapple's precise, objective techniques of measuring interaction by means of a time-recording apparatus.

Another noteworthy contribution to social anthropological theory was the book *The Economic Life of Primitive Peoples* (Alfred Knopf, N.Y. 1940) by Melville J. Herskovits. The author collected all the available data and combined them in a comprehensive account of economic principles as exemplified by the cultures of primitives. He effectively demonstrated the universality of these principles, and ended with a timely plea for more quantitative data from field workers.

A third advance in Social Anthropology was the publication of several community studies carried out in modern settings. C. M. Arensberg and Solon Kimball published their long awaited report on rural Ireland: *Family and Community in Ireland.* (Harvard Univ. Press, 1940.) This work describes the economy and social organization of a single Irish village, and relates the village to the rest of rural Ireland.

After Freedom, A Cultural Study in the Deep South (The Viking Press, N.Y., 1939) by Hortense Powdermaker is a penetrating study of negroes in a southern town carried out by a scientist with wide experience in the primitive field. Miss Powdermaker earlier worked in Melanesia, and the insight into cultural problems which she gained there was applied skillfully in this present study. As a consequence, *After Freedom* is much more than a catalogue of the social ills arising out of racial conflict.

Suye Mura: A Japanese Village (Univ. of Chicago Press, 1939) by J. F. Embree was published in 1939 but received wide notice during 1940. It is an outstanding example of the insight which can be gained by applying anthropological methods to the study of non-primitive cultures.

A fourth advance in Social Anthropology during 1940 was a tendency—everywhere apparent—for people in other social science fields to use anthropological frames of reference, to speak of "culture as a whole" concepts developed originally by anthropologists, and to use ethnographic source material for comparative data.

American anthropologists noted with admiration the capacity of British colleagues to carry on work under the greatest difficulties. Attention was drawn particularly to the excellent work being done among Bantu peoples in South Africa, and to the important publications of H. I. Hogbin and Raymond Firth, in the Oceanic field. American Social Anthropology has likewise profited by the continued presence of Prof. Malinowski at Yale University.

ETHNOLOGY

Important events in this field during 1940 were almost entirely limited to a series of publications, most of them embodying the results of field work carried out during previous years. At the top of the list stands the monumental study, *Ingalik Material Culture* (Yale Univ. Press, 1940) by Cornelius Osgood. This book will serve as a classic model for all future analysis of material culture and is a vigorous reply to the criticisms leveled at ethnologists preoccupied with technology. Significantly enough, the year saw several other publications which point the way to a renascent interest in material culture. Morris Siegel's "The Mackenzie Collection, A Study of West African Carved Gambling Chips." (*Memoir,* American Anthropological Association, No. 55, 1940) is likewise a way-pointer. Siegel's paper is an illustration of what can be done with museum collections studied in relation to their cultural contexts, even when the student has to forego field work and rely upon published accounts. Siegel's method, moreover, has great pedagogical value; it suggests how ethnographic objects which at present are tucked away in American museums can be restudied and, consequently, revitalized by referring them to cultural settings so many hundreds of which have been described in monographs.

Another approach to cultural problems through the study of material objects was published by Harry Tschopik, Jr.—"Navaho Basketry: A Study of Culture Change." (*American Anthropologist,* Vol. 42, No. 3, Part 1, 1940). Studies like this have obvious significance to archaeologists as well as to ethnologists.

Acculturation in Seven American Indian Tribes (Appleton-Century, 1940), edited by Ralph Linton, is also a milestone in ethnological research. Several authors contributed their knowledge and field work experience to draw a unified frame of reference, which they then applied to acculturation studies in a number of tribes. This book is an example of the increasing tendency among anthropologists to work cooperatively on problems of major interest, and the success of this venture will prove a definite stimulus.

Students of the University of Chicago upheld their positions as leaders in the study of contemporary cultures. *The Chorti Indians of Guatemala* by Charles Wisdom (Univ. of Chicago Press, 1940) is a systematic account which should have value for the archaeologist working in the Maya area, and also for the sociologist. The data is presented in the 'inventory' style. *Pascua, a Yaqui Village in Arizona* by E. H. Spicer (Univ. of Chicago Press, 1940) exemplifies a somewhat different approach. The author set about with a definite problem in mind, and pointed most of his efforts towards solving it. Spicer studied a community in which economic activity was thoroughly "Americanized"—based on wage labour—in spite of which the religious system remained Indian-Hispanic. The author's implication is that breakdown of the older economic system does not necessarily bring about disorganization of religious institutions.

Another tendency of ethnological work during 1940 was to turn more and more attention to research among children. Outstanding publication in this field was Wayne Dennis' *The Hopi Child* (Appleton-Century). Kluckhohn's and Wyman's research among the Navaho was publicized by the appearance of "An Introduction to Navaho Chant Practice," (Memoir Number 53, American Anthropologist); and by Kluckhohn's privately printed *A Bibliography of the Navaho*

Indians. Volume V, No. 2 of the University of California Press' *Anthropological Records,* by J. Richardson and A. L. Kroeber, drew attention to the versatility of quantitative analysis of material culture traits.

ARCHAEOLOGICAL WORK IN THE UNITED STATES

Archaeology continued to attract more personnel than any other branch of anthropology; and archaeological projects were carried out in every part of the country. One of the most significant finds of the year was made by Cressman of the University of Oregon. Cressman discovered remains of early man in association with extinct fauna in Oregon caves.

The North was represented by papers on Alaska and Newfoundland. Rainey's report on "Archaeological Investigations in Central Alaska" (*American Antiquity,* Vol. V.), and Wintenberg's on "Eskimo Sites of the Dorset Culture in Newfoundland" (*American Antiquity,* Vol. V.) were enthusiastically received.

Excavation in the southeast continued under auspices of the W.P.A., and was marked by considerable advances in our knowledge of this area. Major W. S. Webb directed work in the Guntersville, Gilbertsville, and Pickwick basins in the Tennessee valley. The Alabama Museum of Natural History excavated new sites at Copena, at which copper and galena were found to be very prevalent. Progress was made on reports of the excavation at Macon by Fairbanks, and at Chickamagua Basin, Tenn. by Lewis. Meanwhile, Lewis has started a new excavation near Memphis. Robert Wauchope conducted a survey of Georgia, while Halse continued work on the Irene Mound. Gordon Willey carried out reconnaissance and excavation along the Florida coast.

The Mississippi Valley came into prominence as a result of the work of Phillips, Peabody Museum, Harvard University; of Ford, Louisiana State University; and of Griffin, University of Michigan. These archaeologists, working in conjunction with the National Park Service, conducted a joint survey of Central Mississippi and laid the foundation for a long-range program of reconnaissance and excavation in this area. Phillips contributed a very important article on *Cultural Relationships between the Mississippi and the Valley of Mexico* (Tozzer Memorial Volume).

Glen Black directed members of the Indiana Historical Society in an excavation at the Angel Site in southern Indiana, and in Illinois work was continued at Kincaid under the direction of Cole.

Strong and Weydel contributed articles on the archaeology of the Northern and Southern Plains areas. Archaeology in the Southwest is definitely past its adolescent stage, and excavations conducted there during 1940 merely marked a continuation of excellent routine work. Perfected excavation techniques together with refinements in pottery classifications and dendrachronology were brought to bear on many different problems, as a result of which a great deal was learned about the dating of cultural horizons, the effects of climatic changes on cultures, and the introduction of new traits.

Emil Haury of the University of Arizona uncovered Mogollon sites near Sholow, Arizona, and at the same place discovered material dating as late as Pueblo II. He also excavated ruins on the Papago Reservation in southern Arizona; while Fulton of Dragoon, Ariz. continued work in the southeastern part of the state. More light was thrown on the pre-pottery cultures in southern Arizona and southern New Mexico through the researches of E. B. Sayles of Gila Pueblo. F. C. Hibben, working for the University of New Mexico, continued excavations in the Gallinas Valley and in Canyon Largo.

Earl Morris, working for the Carnegie Institution, directed digging near Durango, Col., where he found remains of Basket Maker II and III. Morris' publication, *Archaeological Studies in the La Plata District, Southwestern Colorado and North-*

western New Mexico appeared; it was ranked as the most important of the year from the Southwest. Miss Marie Wormington investigated certain peripheral cultures of west central Colorado.

Rouse's paper on West Indian archaeology is a major contribution to the literature of that area.

MEXICO, CENTRAL, AND SOUTH AMERICA

Gordon Eckholm of the American Museum of Natural History carried on research in northern Mexico for the third successive year. Eckholm's publications are eagerly awaited, as he is making perhaps the most significant contributions of all students who have worked on connections between cultures of the Valley of Mexico and those of the American Southwest.

Carnegie Institution members continued in the vanguard of workers in Central American fields. They carried out excavations at Copan, Hondurus, under the direction of Gustav Stromsvik; at San Augustin Acaguastlan, Guatemala, and at Uaxactun, under the direction of Ledyard Smith. Harry Pollock directed archaeological surveys in Yucatan,—particularly in the Campeche Province. Miss A. O. Shepard and George Brainerd carried out technological studies of Middle American pottery.

Besides conducting field work, members of Carnegie are also preparing publications: A. V. Kidder, on the site of Kiminal Juyu (Guatemala City); John Longyear, on Copan pottery; and Robert and Ledyard Smith, on Uaxactun. Eric Thompson's report on Benqui, Viejo (British Honduras) pottery is now in press.

By far the most important publication in this whole field was the memorial volume: *The Maya and their Neighbors* (Appleton-Century) presented to Harvard's A. M. Tozzer. This volume contains papers by many of the leaders of anthropological research, and is particularly interesting in those sections which deal with origins and relationships of high cultures of the Americas.

EUROPE

In the Dordogne region of France, a 12-year-old lad, Marcel Ravidat, discovered a cave with carvings and paintings very similar to those found in Alta Mira. The cave, situated in the Montignoe region, is being studied by Prof. Abel Bresil.

Hallam Movius of the Peabody Museum at Harvard published a "Report on a Stone Age Excavation at Rough Island, Strangford Lough, County Down." (*J.R.S.A.* Vol. LXX) At this site in Ireland Movius found evidence of the Early Larnian (Mesolithic) culture which he had previously defined on the basis of excavations carried out in County Antrim. Movius was also preparing for publication a report on a survey of the Palaeolithic industries of Burma.

NEAR EAST

Conditions in the Old World have practically put a stop to excavating, and American participation is rapidly dwindling. Nevertheless, Nelson Glueck was able to finish his field work for the American School of Oriental Research at Jerusalem. Glueck excavated at Ezion-Gebu on the Gulf of Akaba, a site believed by the archaeologist to have been an important sea port during the reign of Solomon. C. W. McEwen published brief reports on a site at Tel-Fakhariyah, Syria, near Tel-Halaf. McEwen dated this site, which contained a palace and treasure of ivory and statuettes, at about 1500 B.C., and described it as a city of the Kingdom of the Mitanni. R. Ghirschman uncovered a Sassanian site at Shapur in southwest Persia.

FAR EAST

Field work in the Far East came almost to a standstill. Only O. Janse, excavating at Tongking for the Harvard-Yenching, was able to continue his study of Han tombs in that region. Although field work of the Cenezoic Laboratory has momentarily ceased, the Directors of the project, W. C. Pei, Teilhard de Chardin, and F. Weidenreich, published voluminously. This is also the case with the Academica Sinica, whose members have stopped excavating in Yünnan, but are preparing material for publication under the direction of Dr. Li Chi. (See also ARCHAEOLOGY, p. 944.)

PHYSICAL ANTHROPOLOGY

Physical anthropologists chose the occasion of their annual spring meeting in New York to honour Ales Hrdlicka with a volume of essays, printed as a number of the *American Journal of Physical Anthropology.* (Volume XXVII)

In the field of primatology, Strauss made a major contribution in his article: "The Posture of the Great Ape Hand in Locomotion, and its Phylogenetic Implications." (*A.J.P.A.* Vol. 27, No. 2) Strauss demonstrated that the upper extremity of man is closer to that of a catarrhine monkey than to any anthropoid ape in manual posture, the inference being that man branched off from the primate stock before the great ape stage. Randall continued his careful scrutiny of gorilla anatomy. S. Washburn carried out a detailed study of Langurs and Macaques.

M. Suleiman published the results of his study of the Tangier maxilla, a Neanderthaloid fragment discovered by C. S. Coon in the High Cave in Tangiers. (Peabody Museum Papers, Vol. XVI, No. 3)

During 1940 Franz Weidenreich, noted director of operations at the Chinese Cenezoic Laboratory, visited the United States and made available for study several casts of Sinanthropus crania discovered near Peking.

Several important series of skeletal material were excavated from archaeological sites and were being studied. Gordon Bowles and Kenneth Emory uncovered an enormous prehistoric cemetery near Honolulu, and began a systematic study of the hundreds of skeletons. Georg Neumann examined the cranial material coming from the Upper Mississippi drainage area, centering around Fort Ancient. Newman and Snow continued their investigation of skeletal material discovered in Alabama sites.

Racial, anthropometric studies were carried out over a very wide area. The outstanding accomplishment was the series of 2700 aborigines, whites and mixed bloods brought back from Australia by J. Birdsall of Harvard. This expedition, joint Harvard-Adelaide affair, collected data on race mixture which, when published, will rank as a classic alongside of Fischer's Rehobather Bastard study. While engaged in his survey of the aboriginal tribes, Birdsall discovered a pygmoid population living in the rain forest area around Cairns, Queensland; and isolated somatic criteria for a subracial division of Australians into northern and southern types.

D. L. Oliver of Harbard brought back a series of 2,000 adult males, which he measured on Bougainville Island, Mandate Territory of New Guinea. Oliver's series is the largest sample ever made in Melanesia, covered every linguistic and geographical area of the Island, and contains striking suggestions of Negrito and Australoid types.

Carl Seltzer published his report on racial anthropology of the Near East (Peabody Museum *Papers,* Vol. XVI, No. 2.). W. M. Krogman published a paper on "The Peoples of Early Iran and their Ethnic Affiliations" (*American Journal of Physical Anthropology,* Volume XXVI.)

A new approach to the problem of somato-typing was elucidated by Shelden in his publication, *Varieties of Human Physique* (Harper). The author established a taxonomic scheme whereby human types are classified according to the proportions of endomorphism, mesomorphism, and ectomorphism present in physique. In all, 60 types were isolated. The author, a psychologist, is mainly concerned in discovering correlations between somatic and psychological types.

Hooton's new book, *Why Men Behave Like Apes and Vice Versa,* (Princeton Univ. Press) will continue to widen the large circle of admirers of this most gifted teacher and scientist.

XXIV. PHILOSOPHICAL AND SOCIAL SCIENCES

PERIODICAL PUBLICATIONS

American Anthropologist
American Anthropological Association, Menasha, Wis.

American Journal of Physical Anthropology
36th Street and Woodland Ave., Philadelphia.

American Journal of Psychiatry
9 Rockefeller Plaza, New York City.

American Journal of Psychology
Cornell University, Ithaca, N.Y.

American Journal of Sociology
5750 Ellis Ave., Chicago.

American Political Science Review
Menasha, Wis.

International Journal of Ethics
5750 Ellis Ave., Chicago.

Journal of Abnormal and Social Psychology
Ohio State University, Columbus, Ohio.

Journal of Comparative Psychology
Mount Royal and Guilford Aves., Baltimore, Md.

Journal of Educational Psychology
Mount Royal and Guilford Aves., Baltimore, Md.

Journal of Educational Sociology
32 Washington Place, New York City.

Journal of Experimental Psychology
Ohio State University, Columbus, Ohio.

Journal of General Psychology
Journal Press, Provincetown, Mass.

Journal of Philosophy
515 West 116th Street, New York City.

Journal of Social Psychology
Journal Press, Provincetown, Mass.

Mental Hygiene
1790 Broadway, New York City.

Philosophical Review
114 Fifth Ave., New York City.

Psychoanalytic Review
3617 Tenth Street N.W., Washington, D.C.

Psychological Review
Ohio State University, Columbus, Ohio.

Social Research
66 West 12th Street, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Academy of Political and Social Science, 3457 Walnut St., Philadelphia, Pa.

American Anthropological Association, American Museum of Natural History, New York City.

American Association of Physical Anthropologists, American Museum of Natural History, New York City.

American Ethnological Society, American Museum of Natural History, New York City.

American Genetic Assn., 308 Victor Bldg., Washington, D.C.

American Philosophical Society, 104 S. 5th St., Philadelphia, Pa.

American Political Science Assn., 305 Harris Hall, Northwestern University, Evanston, Ill.

American Psychiatric Assn., 2 E. 103rd St., New York City.

American Psychological Assn., Univ. of Minnesota, Minneapolis, Minn.

American Psycopathological Assn., 520 Commonwealth Ave., Boston, Mass.

American Society for Psychical Research, 40 E. 34th St., New York City.

American Sociological Society, University of Pittsburgh, Pittsburgh. Pa.

National Committee for Mental Hygiene, 50 W. 50th St., New York City.

National Institute of Social Sciences, 271 Madison Ave., New York City.

Psychological Corporation, 522 Fifth Ave., New York City.

Society for American Archaeology, 10 Frisbie St., Cambridge, Mass.

PART SEVEN

THE HUMANITIES

DIVISION XXV

LITERATURE AND LANGUAGE

FICTION

BY PETER MONRO JACK

LECTURER AND CRITIC

GENERAL

Best sellers hardly reveal a trend until the historian can sort them out many years afterwards. Thus this year began with *Kitty Foyle* and *The Nazarene* as the most popular reading; then *How Green Was My Valley,* and *Native Land;* then for a time *Night in Bombay, Mr. Skeffington, The Bird in the Tree, Chad Hanna,* mostly summer reading; *Stars on the Sea, Quietly My Captain Waits; How Green* is still first in September with *Mrs. Miniver* now in second place and *You Can't Go Home Again* holding up well. By December the real best seller of the year had established itself in Hemingway's *For Whom the Bell Tolls* with *Oliver Wiswell* as the runner up. Every kind of book is here by turn: topical, historical, satirical, religious, regional, international. It is a healthy diversity, and the popular verdict seems merely to be that one good book deserves another.

THE SPANISH CIVIL WAR

For Whom the Bell Tolls by Ernest Hemingway (Scribner's) is reckoned his best novel and his most popular (in three months it had sold 500,000 copies). It is a story of a few days of the Spanish war, on the Loyalist side. The American volunteer dynamiter joins a guerrila band behind the Fascist lines to blow up a bridge. Flashback narrative fills out and enriches the picture of the Spanish landscape and character. It is a strong, exciting, and deeply serious novel.

The Great Crusade by Gustav Regler, translated from the German (Longmans, Green), is a fine story of the Spanish civil war by a German refugee now in America. Regler had served with the International Brigades, 1936-37, during Guadalajara. Hemingway and others are mentioned in the book. Regler's theme is that Spain was the first defeat for the democracies. Hemingway writes a preface. Rose Macauley's *And No Man's Wit* (Little, Brown) also concerns the Spanish war. *The Brave and The Blind* by Michael Blankfort (Bobbs-Merrill) concerns the siege of The Alcazar during the war. *A Man's Place,* translated from the Spanish of Ramon Sender (Duell, Sloan and Pearce), helps one to understand the war in its picture of a small Spanish village 30 years before the war; the brutalities of the Civil Guard, etc.

COLONIAL AND AMERICAN REVOLUTION

Undoubtedly the great success here was *Oliver Wiswell* by Kenneth Roberts (Doubleday, Doran) who is steadily rising in public esteem. This is another of his long, carefully documented novels of the Revolution, but this time from the Loyalist point of view. The familiar scene therefore is made fresh and startling. Coincidentally, Robert Graves, the English poet and novelist, published *Sergeant Lamb's America* (Random), a novel of the same scene through the eyes of an actual soldier in the British army, whose letters are extant. *Stars on the Sea* by F. Van Wyck Mason (Lippincott) is his second novel of the Revolution, the setting mainly in Newport, and dealing with the beginnings of the American navy. *Quietly My Captain Waits* by Evelyn Eaton (Harper) had a good public for its original story of the French occupation of Canada. John Erskine's *Give Me Liberty* (Stokes) is a story of Virginia just before the Revolution, of Patrick Henry and his times. *The Neutral Ground* by F. O. Hough is more concerned with regional life than with history, though it takes place in Westchester County, New York, during the Revolution.

POST-REVOLUTION

The Trees by Conrad Richter (Knopf) is a study of pioneers after the Revolution crossing the Ohio into the forests, trading with the Indians, trapping and settling, a short and very beautiful novel. *Oh, Promised Land* by James Street (Dial) is a long historical melodrama of the Southwest around 1800. *This Land is Ours* by Louis Zara (Houghton Mifflin) is also very long and somewhat sprawling, of the Mississippi Valley during 1755-1835. *Swift Flows the River* by Hard Jones (Dodd, Mead) is an historical romance of the Columbia River in the middle 1800's.

CIVIL WAR AND LATER

Beckoning Ridge by Emerson Waldman (Holt) is an unusual Civil War novel, recording the plight of the raiding mountain people who were neither in the war nor out of it. *From What Dark Roots* by Francine Findley (Harper) tells the story of the American Utopian idealism in the mid 19th century. *The Loon Feather,* by Iola Fuller (Harcourt, Brace) is a first novel that won the Avery Hopwood prize; it concerns the fur trade at Mackinac Island, and acquaintance with the Ojibways. *The Dust Within the Rock* by Frank Waters (Liveright) is the third of a trilogy to deal with the boom days in Colorado from 1870 to the 1900's. One might add here two novels from the past to the present time as historical accounts: *Decade 1929-1939,* by Stephen Longsheet (Random), the tale of an old pioneer who lives into the present; and *Cubra Libre* by MacKinlay Kantor (Coward-McCann), the story of a Cuban orphan from the Spanish-American war who lived to fight in the war of 1914. A fine American novel on the plight of the betrayed refugees in Prague is Martha Gellhorn's *A Stricken Field* (Duell, Sloan and Pearce).

AMERICAN REGIONALISM: NEW ENGLAND

Again this field was crowded, with no outstanding success. Perhaps the best liked was *Chad Hanna* by Walter D. Edmonds (Little, Brown), which, though it has to do with circus life, stems from his favorite district of the Erie Canal. From New England came something of a discovery in Thomas Sugrue's *Such is the Kingdom* (Holt) of Irish life in a Connecticut small town in 1909. Other New England novels are Frances Frost's *Uncle Snowball* (Farrar & Rinehart); *Small Potatoes* by Emily Muir (Scribner's), Maine characters, and their folkways with something of an antiquarian interest; Esther Hammond's *The Road to Endor* (Farrar & Rinehart) which goes back to Salem in its witch days; Harlow Este's story of Maine, *Hildreth,* which won a $10,000 prize; Christine Parmentier's Massachusetts novel *As the Seed is Sown;* John de Meyer's *Bright Was Their Destiny;* George Abbe's *Dreamers' Clay;* Frances P. Keyes's *Fielding's Folly,* from New England to Virginia; Ward Greene's New Jersey novel, *Route 28.*

THE SOUTH

One of the best Southern novels is Carson McCuller's *The Heart is a Lonely Hunter* (Houghton Mifflin), a story of poor people by a young writer of evident talent. James Still's *River of Earth* (Viking), a first novel, of Kentucky, attracted some attention. Another first Kentucky novel is by Jesse Stuart, already well known as a poet, called *Trees of Heaven* (Dutton), a fresh and original work. Erskine Caldwell's *Trouble in July* (Duell, Sloan and Pearce) is a grotesque story of a lynching in Georgia. *The Keepers of the House* by Harry Harrison Kroll (Bobbs-Merrill) is an unusually realistic novel of the South, socially and economically. *Spring Will Come Again* by Florence G. Palmer (Bobbs-Merrill) is detailed and authentic about the whites and blacks in Alabama and the Mississippi region. Lella Warren's *Foundation Stone* (Knopf) goes back to Alabama in 1820. Laura Krey's *On the Long Tide* deals with Texas during the reconstruction period. John W. Thomason's *Lone Star Preacher* has to do with Praxiteles Swan of the Confederate Army, from Texas to Gettysburg. Inglis Fletcher's *Raleigh's Eden* (Bobbs-Merrill) is of pre-revolutionary North Carolina. Others are Mildred Haun's *The Hawk's Done Gone,* of Tennessee mountains today, and Minnie Moody's *Long Meadows,* of Virginia during the Revolution.

THE WEST AND SOUTHWEST

Paul Corey's second novel *The Road Returns* (Bobbs-Merrill), of farm and small town life in Iowa, was much praised. *Light Sons and Dark* by David Cornel DeJong (Harper) was admirable for its portrayal of Kansas farm life. *The Ghostland* by Fred Rothermell (Lippincott) is a picture of the Ozarks and the drought, as harsh as it is human. *Bright Journey* by August Derleth (Scribner's) is the fourth of his novels in the saga of Sac Prairie: Wisconsin in the early 19th century. *The Winds of Spring* by Walter Havighurst (Macmillan) is about Wisconsin pioneers. Bruce Lancaster's *For Us the Living* (Stokes) records young Lincoln's Ohio. Neil Swanson's *The Silent Drum* portrays the Middle Border before the Revolution. Harold Sinclair's *Westward The Tide* (Doubleday, Doran) is the story of Colonel Clark's army conquering Illinois in 1778. Others are Mildred Walker's *The Brewer's Big Horse* (Michigan), Wessel Smith's *Another Morning* (Detroit), Walter Van Tiburg Clark's *The Oxbow Incident* (Nevada, 1885.—Random), Maurine Whipple's *The Giant Joshua* (Utah), Philip Atley's *The Inheritors* (Texas), Frances Gillmor's *Fruit Out of Rock* (Arizona), Archie Binns's *The Mighty Mountain* (Washington in the 1850's—Scribner's), F. Ruth Howard's *Green Entry* (California horse-show circuits), and Willard Robertson's *Moon Tide* (San Diego). Paul Horgan's *Figures in a Landscape* (Harper) contains sketches of life and landscape in New Mexico. Ketti Frings's *Hold Back the Dawn* (Duell, Sloan and Pearce) tells the sad story of refugees waiting south of the border to get into America.

LEWIS, WOLFE, AND OTHERS

Upton Sinclair's biggest novel to date is *World's End,* a cyclorama of the first world war, dealing chiefly with the trade in munitions (Viking). Sinclair Lewis's new novel is *Bethel Merriday* (Doubleday, Doran), a light-hearted story of summer theatres and the actors and actresses with whom Mr. Lewis has recently been acquainted, both as playwright and trouper. Thomas Wolfe's posthumous novel, perhaps the last from his voluminous manuscripts, is *You Can't Go Home Again* (Harper). It continues the story of George Webber from *The Web and the Rock* of 1939, and it is notable for introducing a well-known New York editor and an American Nobel prize-winning novelist; the portraits are generally identified as Maxwell Perkins and Sinclair

Lewis. It is as good a novel as his first.

A direct contrast to Wolfe's long work is the brilliantly stylised short novel of two Americans in France by Glenway Wescott, called *The Pilgrim Hawk.* (Harper) *Sapphira and the Slave Girl* (Knopf) is Willa Cather's latest and one of her best novels, a brief and simple domestic story of Virginia in 1856. William Faulkner's *The Hamlet* (Random) is another of his Southern novels of the Snopes family, of abnormal psychology. Hans Otto Storm has written a mature and important novel in *Count Ten* (Longmans, Green), set in Mexico and California, of the education of a young man; a novel among America's best.

HISTORICAL FICTION

The Pool of Vishnu is a continuation of the subtle and psychological story begun by L. M. Myers in *The Root and The Flower,* of India in the 16th century (Harcourt, Brace). *Chin P'ing Mei,* translated from the Chinese from an anonymous author, is a 16th century Rabelaisian discovery (Putnam). In *Winged Citadel* Kristmann Gudmundsson, translated from the Norwegian (Holt) recreates the story of the old Cretans. *Men in Chains* by Thomas Ryan (Random) is a collection of stories from the eighth century, B.C. to the present time, of different civilizations.

C. S. Forester's popular novel of Columbus's third voyage, 1498-99, full of adventure and discovery, is called *To The Indies* (Little, Brown). *The Star-Gazer* is Zsolt de Harsanyi's story of Galileo and the liberation of the intellect during the Renaissance (Putnam). *The Great O'Neill* by E. Boyd Barrett is a popular biographical story of the great Irish lords in Elizabethan times (Hale, Cushman, and Flint). Phyllis Bentley writes of her native Yorkshire during the Cromwellian period in *The Power and the Glory* (Macmillan). Rene Kraus goes back to Greece and a portrait of Socrates as the first psychologist in *The Private and Public Life of Socrates* translated from the German, (Doubleday, Doran). John Masefield tells the story of the Empress Theodora in the sixth century, in *Balilissa* (Macmillan).

Hermann Kesten's *I, The King,* translated from the German, (Alliance) is a novel of Philip II of Spain. Lady Eleanor Smith's *Lovers' Meeting* (Doubleday, Doran) is set in the English Regency period, with pictures of Napoleon, Byron, Beau Brummel, etc. D. L. Murray writes of the French Empire in 1870 and the Commune in *Tales of Three Cities* (Knopf). Beatrice Kean Seymour chronicles English life from 1720 to 1841 in *The Unquiet Field* (Macmillan. The first novel of the poet Joy Davidson is *Anya,* of 19th century Russian Jewry, a comedy (Macmillan).

John Brophy makes a good novel out of the life of Shakespeare in *Gentlemen of Stratford* (Harper). James Norman Hall tells "tall" tales of an English naval surgeon in the 18th century, in *Doctor Dogbody's Leg* (Little, Brown). Two historical biographical novels are *So Perish The Roses,* a novel of Charles and Mary Lamb (Macmillan) and *These Were The Brontës* by Dorothy Cornish (Macmillan).

SOCIAL AND RACIAL PROBLEMS

The most successful novel to draw attention to social and racial problems was Richard Wright's *Native Son* (Harper), one of the books of the year, a story of the crime and punishment of a Chicago negro whose exciting and melodramatic destiny is a direct accusation of American racial antagonism and a plea for better social conditions for the Negro race. James T. Farrell continues his realistic saga of Chicago middle-class Irish Catholics in *Father and Son* (Vanguard), the further story of Danny O'Neill. In *Sons of the Father* Albert Halpert shows the sons of a Jewish shopkeeper conscripted in the last war and suggests a parallel with the present draft (Harper). In *The Underground Stream* Albert Malts writes of the conflict in Detroit between the C.I.O. and the Black Legion in 1936

(Little, Brown). Mayer Levin's *Citizens* (Viking) is a story of the Chicago steel strikes of 1937. *But You Are Young* by Josephine Lawrence (Little, Brown) is a good example of the sociological novel, dealing thoughtfully with the economic and industrial problems of a poor hard-working family. Taylor Caldwell's *The Eagles Gather* (Scribner's) may be added here, a novel of the armament industry in America, through the story of a family who had prospered in the fear of war.

ENGLISH NOVELISTS

"Despite paper restrictions, loss of stocks through bombing, and the other hazards of carrying on business in England", the *London Times Literary Supplement* states that upward of 11,000 new books were published during 1940, as against 9,515 new books in America.

No Arms, No Armour by Robert Henriques (Farrar & Rinehart) was the winner of the All-Nations Novel Competition, of the growth and development of an officer in the British army, more interested in character than in action.

Two books made a great success in America: *How Green Was My Valley* by Richard Llewellyn (Macmillan), a simple and heroic tale of Welsh miners, and *Mrs. Miniver* by Jan Struther (Harcourt, Brace), a pleasant story of a happy English family, with a new character added to English literature. *Fame is the Spur* by Howard Spring (Viking) may have been suggested by the career of Ramsay MacDonald, since it deals with the rise of an illegitimate boy of the working class to cabinet rank; an exciting novel. *Let the People Sing* (Harper) is J. B. Priestley's latest novel, an entertaining, Dickensian story of the common people in England. *The Happy Land* by Eric Knight (Harper) is a deeper and more serious novel of his native Yorkshire, of working class England. Norman Collins writes a somber story of London 40 years ago, about a chain store, in *Gold for my Bride* (Harper).

William McFee writes one of his best sea stories in *Watch Below* (Random), of characters in a tramp ship around 1800. Oliver St. John Gogarty, the Irish writer, turns to English characters for his essay-novel *Going Native* (Duell, Sloan and Pearce). H. G. Wells's *Babes in the Darkling Wood* (Alliance) is a long novel of ideas, his second book of the first year of the present war. Wells sees no victory for either side, predicts the fall of the Empire, and has no faith in the existing order. Nevil Shute, the pseudonym of an English aeronautical engineer, tells a fighting story in *Landfall* (Morrow). Margery Sharp writes an amusing novel in *The Stone of Chastity* (Little, Brown). Elizabeth's *Mr. Skeffington* (Doubleday, Doran) is a skillful psychological study of a middle-aged beauty.

Aldous Huxley's novel, *After Many A Summer Dies the Swan* (Harper), is set in southern California, where he is living, and concerns a fabulous millionaire who owns a castle and a mistress and practically all the art treasures of the world, but is terrified at the thought of death. Charles Morgan's *The Voyage* (Macmillan) is a love story set in France in the 1880's. Ralph Bates's *The Fields of Paradise* is a story of revolution in a Mexico village.

MANN, FEUCHTWANGER, AND OTHERS

Fiction has been much enriched by the novels of voluntary exiles and refugees written and translated in America. Thomas Mann's new novel, translated from the German, is *The Beloved Returns: Lottie in Weimar* (Knopf), the story of Goethe's early love about whom he wrote in *The Sorrows of Werther* and his later meeting with her when she was old. *Paris Gazette,* translated from the German, (Viking), is Lion Feuchtwanger's novel of German refugees in Paris. Erica Mann has written documented stories of middle class life under the Nazis in *The Lights Go Down* (Farrar & Rinehart). *The Valley of Exile* by L. F. Lovedey Pryor

(Harrison-Hilton) concerns the Tyrol German-speaking people who were ordered back to the Reich. Franz Hoellering has written in *The Defender,* translated from the German (Little, Brown) a great story of the defeat of Vienna in 1933. Oskar Maria Graf, in *The Life of My Mother* (Howell Soskin), writes an autobiographical novel of Germany before and after Nazism. R. C. Hutchinson's *The Fire and The Wood* (Farrar & Rinehart) is the story of a Jewish scientist in Nazi Germany.

The Family (Little, Brown) by Nina Fedorova, now living in Oregon, won the *Atlantic Monthly* prize of $10,000; a sympathetic story of White Russian refugees in Tientsin, 1937, first novel. Sigrid Undset's new novel *Madame Dorothea* (Knopf) is a story of the late 1700's. In *Embezzled Heaven,* translated from the German, (Viking), Franz Werfel writes an unusual novel of an old Bavarian peasant woman and her plan of buying her way into heaven. *The Cradle Builder,* translated from the German, (Farrar & Rinehart) by Walter Schoenstedt, German emigre, is a story of a German youth in New York in love with a girl from Vermont.

Knut Hamsun's *Look Back on Happiness,* translated from the Norwegian, (Coward-McCann) is a story of unhappy and frustrated people in a Norwegian village. *Flight* by Arthur Omre, translated from the Norwegian, (Appleton), a picture of Norwegian life, is the first of his to be translated. Johan Bojer writes a light and humorous historical story of the older Norway in *The King's Men,* translated from the Norwegian, (Appleton). In *Dutch Vet.* A. Roothaert writes a simple, realistic story of pre-Hitler Holland, translated from the Dutch, (Macmillan). In *Mariana,* translated from the Finnish, (Farrar & Rinehart) Sally Salminen writes a simple rural story of Finland before the war. *The Star of Satan* by Georges Bernanon, translated from the French, (Macmillan), published in 1929, is a realistic and somewhat sensational story of a simple peasant-priest in a rural parish, whose faith is the motive of the book.

Amerika by Franz Kaffka (New Directions), translated from the German, is an imagined story of what America would be like by the Jewish genius who knew America only through the writings of Benjamin Franklin, Whitman, and Dickens's "Martin Chuzzlewit." Roger Vercel's *Troubled Waters* (Random), translated from the French, is a psychological study of father and son, both in love with the mother. Jean Giorno's *Joy of Man's Desiring,* translated from the French, (Viking) is a poetic and colorful story by the author of the film "Harvest."

MISCELLANEOUS

Robert Nathan's new novel, *Portrait of Jennie* (Knopf) is a novelette in Nathan's most exquisite mood. Mark Van Doren writes a slight but curiously interesting symbolic and psychological story of crime in *Windless Cabins* (Holt). *Sons and Fathers* by Maurice Hindus (Doubleday, Doran) is a novel that take its theme from Turgenev and is set in Russia of 1917. Susan Glaspell's first novel, by a writer best known in the theatre, is *The Morning Is Near Us* (Stokes), a nostalgic story of a small town community. The poet Conrad Aiken writes a light story of love in *Conversation* (Duell, Sloan and Pearce). *My Name is Aram* is William Saroyan's story of boyhood (Harcourt, Brace).

Christina Stead, who is now living in America, has written a story of domestic tragedy in *The Man Who Loved Children* (Simon and Schuster). *Pal Joey* is John O'Hara's tough story of a Chicago song-plugging wiseguy, in Ring Lardner's style, recently turned into a successful play (Duell, Sloan and Pearce). *Piano in the Band* is a neat and clever picture of a jazz-swing orchestra. by Dale Curran (Reynal and Hitchcock). *Olives on the Apple Tree* is a first novel by Guido D'Agostino on the Americanization of an Italian family. Clyde

Brion Davis's *Sullivan* (Farrar & Rinehart) is an entertaining tale of a person called Gilbert Sullivan. In *The Cabellero* Harold Courlander writes of a twentieth century conquistador in Puerto Negro.

Isabel Paterson writes an unusual and intelligent novel on love in *If It Prove Fair Weather* (Putnam). Dawn Powell's *Angels on Toast* is a witty and sometimes brutal satire of business life in Chicago and New York (Scribner's). *The Canyon,* by Peter Viertel (Harcourt, Brace) is a skilful first novel of adolescence. *Intrude No More* is a first novel by Virginia Creed (Duell, Sloan and Pearce), set in Boston and Vienna. Lawrence E. Watkin, who wrote *On Borrowed Time,* turns to an amusing account of academic life in a Southern college in *Geese in The Forum* (Knopf). A first novel by Frances Bainbridge Colby is *The Black Winds Blow* (Harrison-Hilton), a strong and bitter novel of Boston Irish characters.

Dildo Cay by Nelson Hayes (Houghton Mifflin) is the story of the ancestral owners of this island in modern times. Leslie Edgley in *No Birds Sing* (Farrar & Rinehart) writes of the desolation of a youth in a midwestern steel town. *The Young Man From Mount Vernon* (Stokes) by Arthur Piers is made up of fact and fiction about Washington. *No More Gas* by Charles Nordhoff and James Norman Hall (Little, Brown) is a rollicking novel of a New England sailor wrecked in Tahiti in the midnineteenth century. Martin Hare writes a foreign-situation novel of an Englishwoman who married a Pole in *Polonaise* (Macmillan). Ruth Manning-Sanders tells of circus life through the war in *Luke's Circus* (Little, Brown).

In *Experiment,* Helen Hull writes four short novels, the extraordinary stories of four ordinary characters (Coward-McCann). *Gypsy, Gypsy* is Rumer Godden's story of peasant life in Normandy (Little, Brown). Jake Falstaff wrote stories of country folk and children growing up in *Jacoby's Corners* (Houghton Mifflin). Louis Bromfield's new story is again set in India, *Night in Bombay* (Harper). *Their Own Country* by Alice Tisdale Hobart (Bobbs-Merrill) takes her characters from the oil well of China to the production of industrial alcohol for Kansas farmers. William Carlos Williams continues his story of a middle-class couple in New York and their growing children in *In The Money* (New Directions). James Gould Cozzens writes a slight and pleasantly sophisticated novel set in Italy in *Ask Me Tomorrow* (Harcourt, Brace).

SHORT STORY ANTHOLOGIES

The Best American Short Stories, 1940 (Houghton Mifflin), edited by Edward J. O'Brien, shows a great range and variety from Hemingway to Katherine Anne Porter. *The Best British Short Stories,* by the same editor, (Houghton Mifflin) contains 29 stories, only two of topical interest. *O. Henry Memorial Award Prize Stories,* selected and edited by Harry Hansen (Doubleday, Doran) gave the prizes to Stephen Vincent Benet, Roderick Lull, and Edward Havill, in that order. *Post Stories of 1939* (Little, Brown), 20 stories out of the 225 published in the *Saturday Evening Post. Short Stories from the New Yorker* (Simon & Schuster) 68 from the thousands of short stories that have appeared in the magazine since its publication in 1925.

SHORT STORIES

The Crazy Hunter by Kay Boyle (Harcourt, Brace) consists of three very distinguished long short stories, the title story set in the English countryside, admirable in observation and technique. Meridel Le Suer's *Salute to Spring* (International) is by one of America's most talented proletarian writers. *The Mixture as Before* is W. Somerset Maugham's newest collection of stories (Doubleday, Doran). In *Big River to Cross,* Ben Lucien Burman collects his essays, sketches, and stories of Mississippi life today (Day). Erskine Caldwell collects stories from four earlier volumes, with nine new stories, mainly of the degenerate South in *Jackpot* (Duell, Sloan and Pearce).

The McKennys Carry On are further entertaining sketches by Ruth McKenny of the two sisters from Ohio (Harcourt, Brace). *Masks and Faces* by Phyllis Bottome (Little, Brown), short stories of a psychological nature. *The Ship's Surgeon's Yarn* and other stories (Reynal and Hitchcock), light stories of East Africa by Francis Brett Young. *The Paesanos* by Joe Pagano (Little, Brown) is a collection of short stories or sketches of Italian countrymen in America. August Derleth's *Country Growth* (Scribner's) contains 20 stories of a Wisconsin small town. Katherine Brush's *This is On Me* (Farrar & Rinehart) is a "hodge-podge", as she calls it, of her writing and her life, with her stories included. John Mosher's *Celibate at Twilight* (Random) is a collection of what is called "casuals", something between stories, sketches, essays, many from *The New Yorker.*

POETRY

BY PETER MONRO JACK

LECTURER AND CRITIC

MISS MILLAY AND OTHERS AND THE WAR

Edna St. Vincent Millay has again been the only popular American poet with her *Make Bright The Arrows* (Harper) in the non-fiction best-seller list. This is what she calls her 1940 Notebook, poems in war-time; deeply felt, technically not as finished as her usual work but more immediately interesting. There was a sharp difference in critical opinion. Those who agreed with the importance of her appeal for aid to England overlooked the lack of poetical perfection. Others deplored the prosaic form. In any event, her poems had a direct popular appeal.

Louis MacNeice wrote a commentary on present-day English life in *Autumn Journal* (Random), the most sustained and interesting work that he has done. *The White Cliffs* by Alice Duer Miller (Coward-McCann) is a short novel in verse of the English landscape and life, romantic and evocative.

COLLECTIONS, SELECTIONS

The complete definitive edition of A. E. Housman's poems is published by Holt, titled *The Collected Poems of A. E. Housman;* it includes A Shropshire Lad, Last Poems, More Poems, Additional Poems, Translations, Note on the Text, Chronology of the Poems; a handsome edition of the perfect poet of his generation. *The Collected Poems of Kenneth Fearing* (Random) includes the earlier books: Angel Arms, Poems, Dead Reckoning, with 20 new poems; by a poet who is the most original left-wing political satirist of our day. *The Face is Familiar* is an omnibus volume of Ogden Nash's witty wisdom in verse (Little, Brown). *Lyric Laughter* is a collection of old and new light verse by Arthur Guiterman (Dutton). In *Weep and Prepare* (Coward-McCann) Raymond E. F. Larsson, a Catholic poet of fine musical sensibility, collects his devotional poems to date including O City, Cities. *Love and Need* is the collected volume of Jean Starr Untermeyer's Poems from 1918 to 1940 (Viking). Kipling's verse is collected in a final edition with some new poems (*Rudyard Kipling's Verse,* Doubleday, Doran).

ANTHOLOGIES

An unusual anthology comes from England: *Fear No More* (Cambridge Univ. Press), made up of poems written in the past five years; some by established writers, others by new younger poets, but all anonymous; in general not topical but rather showing English traditional landscape and life. The New Directions Press publishes the work of five *Young American Poets* (average age, 28) for the first time in book form; with photograph, brief biography, facsimile of manuscript, and a note on poetry by each. Four have been connected with universities as teachers; the fifth is a university librarian. Their names are George Marion O'Donnell, Randall Jarrell, John Berryman, W. R. Moses, and Mary Barnard. The return to form and discipline is to be noted. *The Lyric Psalter* (ed. Harry Mayer, Liveright) presents the Psalms in new versions by contemporary poets. *Three Centuries of American Hymnody* (ed. H. W. Foote, Harvard) is a scholarly collection of hymns and a study of their writers going back to Colonial days. Tom Boggs edits and introduces new and old poets in *Lyric Moderns* (Decker, Prairie City, Ill.) in good and accurate taste and printing. *New Michigan Verse* is edited by C. E. Burklund, with a foreword by Louis Untermeyer (Michigan U.P.), a creditable collection of regional verse, including the names of Ten Hoor, Roethke, De Jong, H. M. Jones. John Ciardi, who is not included, won the Hopwood Poetry Prize in 1939 at the University of Michigan, and has published a good book in *Homeward To America*.

TRANSLATIONS

Fifty Selected Poems of Rainer Maria Rilke, with English translations by C. F. MacIntyre (California), is by an American poet who has made a long and careful study of Rilke's work, now being read more than ever. F. Garcia Lorca's *The Poet In New York and Other Poems* (Norton) is a translation of poems written by the Spanish poet (assassinated in Granada in 1936) when visiting New York. The translation is by Rolfe Humphries, with the Spanish text. The young American poet Delmore Schwartz translates Arthur Rimbaud's *A Season in Hell* (New Directions).

POUND, AUDEN, MASTERS

Ezra Pound's new *Cantos LII-LXXI* (New Directions) completes two-thirds of his long and difficult work, on the historical roots of the modern mind, concerned here mainly with Chinese philosophy and John Adams's American notes. Pound now makes it easier for the reader by translating from the various languages he uses, and there is even a brief explanation. W. H. Auden's *Another Time* (Random) is simpler, more open, less symbolic, and reflective of the influence of American popular ballads (Auden will become an American citizen); contains memorial verse on Yeats, Toller, Freud. Edgar Lee Masters adds to his midwest characters in an extension of Spoon River Anthology in *More People* (Appleton). Dylan Thomas, the Welsh poet, writes a mixture of Welsh tales, symbolism, and fantasy in *The World I Breathe* (New Directions).

AIKEN, BENÉT, BACON

Conrad Aiken writes a sonnet sequence in *And in the Human Heart* (Duell, Sloan and Pearce), 43 love poems in the Shakespeare tradition. William Rose Benét writes 24 new poems on the air and airmen, in ballad form, in *With Wings As Eagles* (Dodd, Mead). Leonard Bacon's latest book of thoughtful and sensitive verse is *Sunderland Capture,* and other poems (Harper).

PITTER, LA FARGE, WILLIAMS

Ruth Pitter, who is thought by James Stephens to be the next best poet to W. B. Yeats, publishes more lyrics in *The Spirit Watches* (Macmillan). Christopher La Farge follows his successful verse-novel of 1939 with some rather slight portraits of people and nature in *Poems and Portraits* (Coward-McCann). Oscar Williams, a business man who writes effective verse in every style and has won many prizes, baffled the critics with his *The Man Coming Toward You* (Oxford), but the opinion was that the verse, however good, was imitative rather than original.

HOLDEN, PROKOSCH

Raymond Holden's third book, *The Arrow at The Heel* (Holt), is his longest and most serious, including the Phi Beta Kappa poem, "Tufts College," and a group of 50 sonnets. *Death at Sea* (Harper) is Frederic Prokosch's individual and picturesque lyrics of love and elegiac celebration. Norman Rosten's *Return Again, Traveler* was chosen for this year's Yale Series of Younger Poets.

ROBERTS, STRUTHER, BYNNER, AND OTHERS

Song in the Meadow is a second book of poetry by the novelist Elizabeth Madox Roberts (Viking), poems that have the life and music of Kentucky folksong. Jan Struther, author of *Mrs. Miniver,* writes simply and neatly in *The Glass Blower and Other Poems* (Harcourt, Brace).

Witter Bynner's short, intelligent lyrics are supplemented by a sonnet sequence in *Against The Cold* (Knopf). *Wild Heron* (Harper) by Daniel Whitehead Hicky, who lives and writes in Georgia, is his fourth book and again shows his competence in the sonnet form. Robert Hillyer's urbane, slightly mocking, and well-turned verse in *Pattern of A Day* (Knopf) includes the sonnets "In Time of Mistrust" spoken at the College of William and Mary for the 100th anniversary of the founding of Phi Beta Kappa. *The Tomb of Thomas Jefferson* is Lawrence Lee's Phi Beta Kappa poem read at William and Mary in 1939, with other poems (Scribner's).

NEW ENGLAND SCENE

Wait for These Things (Holt) is a first book of the New England scene by George Abbe who has appeared in the anthology, *Trial Balances.* Kimball Flaccus includes lyrics of New England with a three-act play in verse on the legend of Quetzalcoatl in *The White Stranger* (Scribner's). *Wagon Weather* (Dallas, Tex.) is Charles Malan's third collection of Vermont regional verse. *November Hereabout* by a 70-year-old harpist, Amy Murray (Holt), is sponsored by her Rockland County neighbour, Maxwell Anderson. *Maine Tides* (Holt) is Wilbert Snow's poetic sketches of a New England village a generation ago, his fifth book.

"VERTICALISM"

Eugene Jolas, editor of *Transition,* writes *Planets and Angels* (published at Mount Vernon, Iowa) to affirm his belief in "angelic perspectives . . . the existence of God . . . a supernatural universe of higher beings." A new sponsoring press, called the League to Support Poetry, publishes Kenneth Slade Alling's *Core of Fire,* on the permanence of nature. *This is Our Time* by Marie de L. Welch (Macmillan) reconciles the animal and the human world. Phyllis McGinley's new volume of light, amusing verse is *A Pocketful of Wry* (Duell, Sloan and Pearce).

HISTORY

By Paul H. Buck

Associate Professor, Harvard University

GENERAL

The war in Europe has had a twofold influence upon the recent work of American historians. Historians have sought through their studies to aid in the clarification of the great issues which have produced the crisis and which will shape the eventual settlement. They have also given greater consideration to the effects which past wars have had on the societies that waged them.

Meanwhile the normal trends of contemporary American historiography continued to run strongly. Books published in 1940 showed a wide and varied range of subject matter. No work of large scope or of profound significance to a wide public appeared, but a number of books of merit in their respective fields did come from the presses. Interest in social, economic and political history remained dominant. There were definite signs of awakened interest in the intellectual history of the United States. Problems of historical synthesis and the relation of history to other subjects received greater attention as is illustrated by C. F. Ware, ed., *The Cultural Approach to History* (Columbia).

REFERENCE WORKS

A book of great utility, planned with intelligence and executed with skill, is W. L. Langer, ed., *An Encyclopaedia of World History* (Houghton, Mifflin). Also useful for reference is J. T. Adams, ed., *Dictionary of American History* (Scribner, 5 vols.).

INTERPRETATIONS

R. H. Gabriel, *The Course of American Democratic Thought* (Ronald), is a path-blazing essay in a difficult field. It offers for the nineteenth century in the United States a valid synthesis in the sources and expression of democratic ideas. L. M. Hacker, *The Triumph of American Capitalism* (Simon and Schuster), is a type of economic determinism applied in interpretation of the major crises of our history. Vivid but doctrinnaire, stimulating but frequently inaccurate in the eyes of the orthodox, the book is highly controversial.

MARCUS LEE HANSEN

Marcus Lee Hansen died in 1938 at the age of forty-five. His untimely death left nearly finished but still unpublished several significant studies in the field of immigration history. Ably edited by A. M. Schlesinger, these studies have now been published. *The Immigrant in American History* (Harvard) is a collection of nine essays, mainly interpretative, in the larger aspects of immigration. *The Atlantic Migration, 1670-1860* (Harvard), Hansen's most important work, analyzes the forces which influenced the movement of Europeans to America. *The Mingling of the Canadian and American Peoples* (Yale), studies the movement back and forth across the border between the United States and Canada. Together these books are an impressive monument to the thoroughness of Hansen's research and to his competence as a student of immigration.

COLONIAL HISTORY

An important new study working out in detail the revolutionary forces in one colony is C. A. Barker, *The Background of the Revolution in Maryland* (Yale). Various phases of exploration are studied in S. E. Morison, *Portuguese Voyages to America in the Fifteenth Century* (Harvard); H. R. Holand, *Westward from Vinland* (N.Y.: Duell, Sloan and Pearce), an account of the Norse voyages; W. B. Goodwin, *The Lure of Gold* (Meador), an account of the "five lost ships of Christopher Columbus"; and A. B. Donworth, *The Reason Why Columbus Sailed* (Boston: Thomas Todd & Co.). In *Torchbearer of the Revolution* (Princeton), T. J. Wertenbaker narrates the story of Bacon's rebellion. L. B. Wright, *The First Gentlemen of Virginia* (Huntington Library), describes the intellectual traits of the early ruling class of Virginia. S. M. Ames, *Studies in the Virginia Eastern Shore in the Seventeenth Century* (Dietz), is an economic and institutional account. D. L. Kemmerer, *Path to Freedom* (Princeton), describes the struggles for self-government in colonial New Jersey in the 18th century. M. Jensen, *The Articles of Confederation* (Wisconsin), deals with the social and constitutional history of the revolution in the years from 1774 to 1781. Other works in the colonial field are St. J. R. Childs, *Malaria and Colonization in the Carolina Low Country, 1526-1696* (Johns Hopkins); R. O. DeMond, *The Loyalists in North Carolina During the Revolution* (Duke); P. M. Hamlin, "Legal Education in

Colonial New York" (New York Univ. *Law Quarterly Review*); F. J. Klingberg, *Anglican Humanitarianism in Colonial New York* (Philadelphia: Church Historical Society); L. Lundin, *Cockpit of the Revolution* (Princeton), a study of New Jersey; I. Mark, *Agrarian Conflicts in Colonial New York* (Columbia), covering the years 1711 to 1775; and M. M. Spector, *The American Department of the British Government, 1768-1782* (Columbia).

POLITICAL HISTORY

A. B. Darling, *Our Rising Empire, 1763-1803* (Yale), deals with the factors which shaped the growth of the American republic in its early years. M. Josephson, *The President Makers* (Harcourt, Brace), analyzes politics in the era from McKinley to Wilson. F. L. Allen, *Since Yesterday, The Nineteen Thirties in America* (Harper), is a sequel to the author's more successful *Only Yesterday*. Another study of recent years is B. Minton and John Stuart, *The Fat Years and the Lean* (Modern Age). K. W. Hechler, *Insurgency* (Columbia), deals with the Taft era. F. L. Burdette, *Filibustering in the Senate* (Princeton), treats the subject historically. C. A. M. Ewing, *Presidential Elections* (Oklahoma), covers the elections from Lincoln to President F. D. Roosevelt. E. E. Robinson, *The Presidential Vote 1936* (Stanford), supplements the author's previous volume *The Presidential Vote 1896-1932*. A useful monograph is J. H. Wolfe, *Jeffersonian Democracy in South Carolina* (North Carolina).

SOCIAL HISTORY

Various phases of American religion are treated in E. S. Bates, *American Faith, Its Religious, Political and Economic Foundations* (Norton), a well written survey; T. T. McAvoy, *The Catholic Church in Indiana, 1789-1834* (Columbia); and E. H. Rian, *The Presbyterian Conflict* (W. B. Erdmans Publishing Co.). On the immigrant, in addition to the important works of Hansen, there appeared J. H. Finley, *The Coming of the Scot* (Scribner); M. Haiman, *Polish Pioneers of California* (Polish Roman Catholic Union); J. P. von Gueningen, ed., *The Swiss in the United States* (Swiss-American Historical Society); and F. S. Childs, *French Refugee Life in the United States, 1790-1800* (Johns Hopkins). P. Munroe, *Founding of the American Public School System*, vol. 1 (Macmillan), covers the years down to the end of the Civil War. Three institutions of higher learning have their histories told in H. D. Sheldon, *History of the University of Oregon* (Portland: Binfords & Mort); E. P. Cheyney, *History of the University of Pennsylvania, 1740-1940* (Pennsylvania); and A. C. Cole, *A Hundred Years of Mount Holyoke College* (Yale).

Miscellaneous social themes are treated in F. Dobyns, *The Amazing Story of Repeal* (Chicago: Willett, Clark & Co.); D. L. Cohn, *The Good Old Days, A History of American Morals and Manners as Seen Through the Sears Roebuck Catalogues, 1905 to the Present* (Simon and Schuster); F. R. Dulles, *America Learns to Play* (Appleton-Century); O. Gramling, *A. P.: The Story of News;* and L. M. Limpus, *History of the New York Fire Department* (Dutton). F. L. Pattee, *The Feminine Fifties* (Appleton-Century) is a literary history of the 1850's.

THE AMERICAN THEATRE

D. Gilbert, *American Vaudeville: Its Life and Times* (Whittlesey), surveys a half-century of vaudeville. J. W. Krutch, *The American Drama since 1918* (Random), is an excellent critical chronicle of recent developments in the American drama. G. C. D. Odell, *Annals of the New York Stage*, vol. 12, 1882-1885 (Columbia), is a work of unique value.

THE NEGRO

C. S. Mangum, *The Legal Status of the Negro* (North Carolina), carefully surveys the statutes and the cases affecting the Negro since the Civil War.

Workers of the Virginia Writers Program of the W. P. A. have compiled an extremely interesting volume in *The Negro in Virginia* (Hastings). W. A. Mabry, *The Negro in North Carolina Politics Since Reconstruction* (Duke), and S. D. Smith, *The Negro in Congress, 1870-1901* (North Carolina), add to our knowledge of the Negro in politics.

THE INDIAN

C. Wissler, *Indians of the United States* (Doubleday, Doran), is an authoritative survey of four centuries of Indian history. Another competent survey with chief emphasis on the relation of the red man to the white man is E. E. Embree, *Indians of the Americas* (Houghton, Mifflin). A. Debo, *And Still the Waters Run* (Princeton), is an account of what happened to the Five Civilized Tribes of the Indian Territory. E. E. Dale and G. Litton, *Cherokee Cavaliers* (Oklahoma), is a valuable book built around the correspondence of the Ridge-Watie-Boudinet family and covering the important period from 1830 to 1880. C. J. Milling, *Red Carolinians* (North Carolina), deals with the Indians in colonial South Carolina. C. C. Rister, *Border Captives* (Oklahoma), tells the story of the traffic in prisoners by the Southern Plains Indians in the middle of the 19th century.

DIPLOMATIC HISTORY

A splendid volume with competent scholarship and freshness of approach is T. A. Bailey, *A Diplomatic History of the American People* (Crofts). Monographs in this field during the year were P. C. Brooks, *Diplomacy and the Borderlands* (California), a study of the treaty of 1819; A. L. Burt, *The United States, Great Britain and British North America* (Yale), covering the years from 1775 to 1820; W. H. Haas, *The American Empire* (Chicago), a study of the territories and colonies of the United States; D. N. Leff, *Uncle Sam's Pacific Islets* (Stanford); D. C. Miner, *The Fight for the Panama Route* (Columbia); L. L. Montague, *Haiti and the United States, 1714-1938* (Duke); W. S. Myers, *The Foreign Policies of Herbert Hoover, 1929-1933* (Scribner); M. Savelle, *The Diplomatic History of the Canadian Boundary, 1749-1763* (Yale); and H. and M. Sprout, *Toward a New Order of Sea Power* (Princeton).

ECONOMIC HISTORY

C. T. Haven and F. A. Belden, *A History of the Colt Revolver* (Morrow), is an accurate and detailed compendium of all sorts of information relating to the Colt revolver. R. Burlingame, *Engines of Democracy* (Scribner) develops the theme that inventions have had a major role in creating the democratic society in which we live. G. W. Dalzell, *The Flight from the Flag* (North Carolina), is a narrative of the Confederate sea raiders and their influence on the American carrying trade. Other studies in economic history are R. L. Black, *The Little Miami Railroad* (published by the author); W. Carsel, *A History of the Chicago Ladies Garment Workers Union* (Chicago: Normandie House); F. C. Bowen, *Conquest of the Seas* (McBride); and D. Giles, *Singing Valleys, the Story of Corn* (Random House).

THE SOUTH

C. Eaton, *Freedom of Thought in the Old South* (Duke), is a history of Southern liberalism prior to the Civil War. J. W. Coleman, *Slavery Times in Kentucky* (North Carolina), is a social history of the Bluegrass State in ante-bellum times. E. Lonn, *Foreigners in the Confederacy* (North Carolina), is a work of careful scholarship. W. M. Robinson, Jr., *Justice in Grey* (Harvard), is a study of the Confederate judiciary. M. M. Brown, *The University Greys* (Garrett & Massie), is the story of a Confederate company. K. duP. Lumpkin, *The South in Progress* (International Publishers), deals with the recent past.

THE WEST

E. Dick, *Vanguards of the Frontier* (Appleton-Century), is a social history of the Northern Plains and the Rocky Mountains. H. E. Briggs, *Frontiers of the Northwest* (Appleton-Century), is a history of the upper Missouri valley. R. C. Downes, *Council Fires on the Upper Ohio* (Pittsburgh), is a record of Indian diplomacy down to the Battle of Fallen Timbers. Other aspects of frontier history are treated in C. Goodrich, *The First Michigan Frontier* (Michigan); C. E. McGlashan, *History of the Donner Party* (Stanford); T. C. Pease and E. Jensen, *Illinois on the Eve of the Seven Years' War, 1747-1755* (Illinois State Historical Society); M. M. Richardson, *The Whitman Mission* (Walla Walla, Wash.: Whitman Publishing Co.); N. V. Russell, *The British Regime in Michigan and the Old Northwest, 1760-1796* (Carleton College); and J. E. Wright and D. S. Corbett, *Pioneer Life in Western Pennsylvania* (Pittsburgh).

REGIONAL AND LOCAL HISTORY

B. L. Pierce, *History of Chicago* (Knopf), vol. 2, covering the years from 1848 to 1871, continues this model history of a great metropolis. Van Wyck Brooks, *New England: Indian Summer, 1865-1915* (Dutton), is a sequel to the author's much acclaimed *The Flowering of New England.* The following state histories were published during the year: C. H. Ambler, *West Virginia* (Prentice-Hall); J. W. Caughey, *California* (Prentice-Hall); W. H. Combs and W. E. Cole, *Tennessee* (Tennessee); G. R. Gaeddert, *The Birth of Kansas* (Kansas); J. K. Garrett, *Green Flag over Texas* (Dallas, Tex.: Cordova Press), covering the years 1803 to 1814; H. Hatcher, *The Buckeye Country* (Kinsey), the story of Ohio; P. S. Klein, *Pennsylvania Politics, 1817-1832* (Historical Society of Pennsylvania); and B. Rascoe, *Boom State: The Story of Oklahoma* (McBride). D. R. Fox, *Yankees and Yorkers* (New York Univ.), considers the conflict and fusion of Yankee and Dutch elements in New York state.

Aspects of local history receive treatment in H. Asbury, *Gem of the Prairie* (Knopf), an informal history of the Chicago underworld; T. W. Clarke, *The Bloody Mohawk* (Macmillan); J. B. Connolly, *The Port of Gloucester* (Doubleday, Doran); T. B. Marshall and G. C. Evans, *They Found it in Natchez* (New Orleans: Pelican Publishing Co.); A. Pound, *Detroit: Dynamic City* (Appleton-Century); F. Riesenberg, Jr., *Golden Gate: The Story of San Francisco* (Knopf); T. G. Tousey, *Military History of Carlisle and Carlisle Barracks* (Dietz); W. H. Wilcoxson, *History of Stratford, Connecticut, 1639-1839* (Stratford Tercentenary Commission); and B. Wootten and A. Higgins, *New Castle, Delaware, 1651-1939* (Houghton, Mifflin).

TESTIMONIAL VOLUME

American Studies in Honor of William Kenneth Boyd (Duke), edited by D. K. Jackson, contains essays mainly in the field of Southern history in which the late Professor Boyd worked.

GENERAL

American writers contributed many books to the history of other countries. C. H. McIlwain, *Constitutionalism: Ancient and Modern* (Cornell), has as its central theme the struggle between law and force. M. R. Beard, *Woman: Co-Maker of History* (Longmans, Green), is a study of woman's achievements. H. Nickerson, *The Armed Horde, 1793-1939* (Putnam), is a study of the mass army. J. T. Flynn, *The Fourteen Decisive Fortunes of History* (Simon and Schuster), tells how great fortunes were accumulated and how they were used.

ANCIENT HISTORY

Among American works in this field were F. E. Adcock, *The Roman Art of War under the Republic* (Harvard); W. G. Braude, *Jewish Proselyting* (Brown); J. Carcopino, *Daily Life in Ancient Rome* (Yale); N. Drazin, *History of Jewish Education from 515 B.C.E. to 220 C.E.* (Johns Hopkins); B. Farrington, *Science and Politics in the Ancient World* (Oxford); T. Frank, ed., *An Economic Survey of Ancient Rome*, vol. 5 (Johns Hopkins); W. K. Prentice. *The Ancient Greeks* (Princeton); W. L. Rodgers, *Naval Warfare under Oars: Fourth to Sixth Centuries* (U.S. Naval Institute); F. J. Teggart, *Rome and China* (California); and W. L. Westermann, C. W. Keyes, and H. Liebesny, *Business Papers of the Third Century B.C. Dealing with Palestine and Egypt*, vol. 2 (Columbia).

MEDIEVAL HISTORY

Books on the Middle Ages include M. W. Baldwin, *The Medieval Papacy in Action* (Macmillan); E. E. Hume, *Medical Work of the Knights Hospitallers of Saint John of Jerusalem* (Johns Hopkins); S. Painter, *French Chivalry* (Johns Hopkins); E. W. Schermerhorn, *On the Trail of the Eight-Pointed Cross* (Putnam); C. E. Smith, *Papal Enforcement of Some Marriage Laws* (Louisiana); R. S. Smith, *The Spanish Guild Merchant* (Duke); and M. P. Gilmore, *Arguments from Roman Law in Political Theory, 1200-1600* (Harvard).

ENGLAND AND THE BRITISH EMPIRE

J. T. Adams, *Empire on the Seven Seas* (Scribner), covering the years from 1784 to 1839; F. LeV. Baumer, *The Early Tudor Theory of Kingship* (Yale); G. Constant, *The Reformation in England*, vol. 2, *Edward VI* (Sheed and Ward); G. P. Cuttino, *English Diplomatic Administration, 1259-1389* (Oxford); H. C. Darby, *The Medieval Fenland*, and *The Draining of the Fens* (Macmillan); N. B. Dearle, *The Labor Cost of the World War to Great Britain, 1914-1922* (Yale); C. M. Frasure, *British Policy on War Debts and Reparation* (Dorrance); A. Gwynn, *The English Austin Friars in the Time of Wyclif* (Oxford); E. H. Harbison, *Rival Ambassadors at the Court of Queen Mary* (Princeton); R. H. Heindell, *The American Impact on Great Britain* (Pennsylvania); G. C. Homans, *English Villagers of the Thirteenth Century* (Harvard); D. Knowes, *The Monastic Order in England* (Macmillan); A. J. Marder, *The Anatomy of British Sea Power* (Knopf); B. T. McCully, *English Education and the Origins of Indian Nationalism* (Columbia); J. U. Nef, *Industry and Government in France and England, 1540-1640* (American Philosophical Society); R. A. Newhall, *Muster and Review* (Harvard); N. D. Palmer, *The Irish Land League Crisis* (Yale); R. B. Schlatter, *The Social Ideas of Religious Leaders, 1660-1688* (Oxford); J. A. Thomas, *The House of Commons, 1832-1901* (Oxford); J. F. Willard and W. A. Morris, eds., *The English Government at Work, 1327-1336* (Mediaeval Academy of America); D. H. Willson, *The Privy Councillors in the House of Commons, 1604-1629* (Minnesota).

CONTINENTAL EUROPE

I. C. Barlow, *The Agadir Crisis* (North Carolina); E. A. Beller, *Propaganda in Germany during the Thirty Years War* (Princeton); F. H. Brabant, *The Beginning of the Third Republic in France* (Macmillan); J. S. Curtiss, *Church and State in Russia* (Columbia); W. L. Dorn, *Competition for Empire, 1740-1763* (Harper); L. Greber and W. Winkler, *The Cost of the World War to Germany and to Austria-Hungary* (Yale); M. Hentze, *Pre-Fascist Italy* (Norton); L. P. Kirby, *The Russian Revolution* (Meador); A. Levin, *The Second Duma* (Yale); J. T. Shotwell and Francis Deak, *Turkey at the Straits* (Macmillan); S. Wambaugh, *The Saar Plebiscite* (Harvard).

ASIA

H. Lamb, *The March of the Barbarians* (Doubleday, Doran), a history of the Mongol Khans; E. H. Norman, *Japan's Emergence as a Modern State* (N. Y.: Institute of Pacific Relations); M. Prawdin, *The Mongol Empire: Its Rise and Legacy* (Macmillan).

LATIN AMERICA

N. M. Crouse, *French Pioneers in the West Indies, 1624-1664* (Columbia); C. L. Jones, *Guatemala, Past and Present* (Minnesota); E. W. Kemmerer, *Inflation and Revolution* (Princeton), treating the Mexican experience of 1912 to 1917; W. A. Roberts, *The Caribbean* (Bobbs-Merrill).

BIOGRAPHY

By Malcolm Oakman Young

Reference Librarian, Princeton University

GENERAL

For quantity, there is little question that the year's product of biographical works is equal to most years', and it is the reviewer's opinion that the average quality is a bit above the average, with none ranking as great masterpieces. There are, too, books which bear out the contention of Albert J. Nock that biography is being "overdone." For the excellent article by this critic and biographer, one should see the *Atlantic Monthly* for March, 1940. In an interview reported in *The New York Times Book Review,* July 21, 1940, Allan Nevins makes certain comments on the art of biography. The field of biography starred twice in the list of Pulitzer prizes awarded in May: Carl Sandburg's *Abraham Lincoln: the War Years* received the deserved prize as the best book based on American history, while Volumes 7 and 8 of Ray Stannard Baker's *Woodrow Wilson* received the prize as the best biography excluding works on Washington and Lincoln.

COLLECTIVE WORKS

A valuable compilation has recently appeared edited by Wheeler Preston, *American Biographies* (Harper), in which "every man or woman from colonial times onward who has played a noteworthy part in the making of the United States" receives a paragraph, each article ending with the principal bibliographical references. Another reference work is *Who's Who among North American Authors, 1936-1940* (Los Angeles, Golden Syndicate). Perhaps to be included here is *Who Was When?* (Wilson) showing by charts contemporaries in all fields. David Ewens adds to his list of useful books on musicians with *Pioneers in Music* (Crowell). Wallace Brockway and Herbert Weinstock include musicians from Palestrina to Stravinsky in their *Men of Music* (Simon and Schuster).

Living Biographies of Great Painters (Garden City Publishing Co.) is by Henry Thomas and Dana L. Thomas. *Rulers of the World* (Crowell), by Maurice Crain includes, among others, Franklin Roosevelt, Neville Chamberlain, Stalin. Fourteen aspirants to the presidency are in Clarence E. Macartney's *Men Who Missed It* (Philadelphia, Dorrance). The fifth and concluding volume of Fred Eastman's *Men of Power* (Nashville, Cokesbury) includes Lenin, Gandhi, Stevenson, and Trudeau. In *The Bar of Other Days* (Harper), Joseph Sauerbach includes sketches of many eminent lawyers. Karl Schriftgiesser in *Families* (Howell, Soskin) gives us the stories of ten prominent American families. *The Mad Booths of Maryland* (Indianapolis, Bobbs-Merrill) is by Stanley Kimmel. *Six Men of Yale* (Yale Univ. Press) by Francis Parsons, sketches lives of Elisha Williams, Ezra Stiles, the later Dwight, Henry A. Beers, Edward J. Phelps, Silliman.

THE PRESIDENTS

George Washington (Oxford) by Nathaniel W. Stephenson and Waldo H. Dunn, in two volumes, is one of the best works on the subject written for several years. The relations between General Washington and Congress and his colleagues are reappraised in *Washington and the Revolution* (Macmillan) by Bernhard Knollenberg. Lincolniana is largely increased. An excellent one-volume selection of Lincoln's writings (Random House), compiled by Philip Van Doren Stern, also includes a biographical essay. *Lincoln: Living Legend* (Univ. of Chicago Press) is by T. V. Smith. Then there are H. E. Barker's *Abraham Lincoln: His Life in Illinois* (M. Barrows); George W. Smith's *When Lincoln Came to Egypt* (Herrin, Ill., Trovillion Private Press) dealing with the period in southern Illinois; Otto Eisenschiml's *In the Shadow of Lincoln's Death* (Funk), and George S. Bryan's *The Great American Myth* (Carrick and Evans). *A Man named Grant* (Houghton Mifflin) is by Helen Todd. *The Bugle that Woke America* (Day) by Hermann Hagedorn, recalls the activities of Theodore Roosevelt in the war years. At last there has appeared the authorized biography, *Calvin Coolidge* (Little Brown), by Claude M. Fuess.

MEN OF POLITICS

Two minor figures begin this group: the Georgia political figure, Thomas Spalding in a book by E. Merton Coulter, and Felix Grundy, the jurist and Tennessee Senator whose life is recorded by Joseph H. Parks (both published by the Louisiana State Univ. Press). The next is the little known but influential, unofficial member of Lincoln's cabinet, Anna Ella Carroll, in *My Dear Lady* by Marjorie B. Greenbie (Whittlesey). In the *American Political Leaders Series* (Dodd, Mead) has appeared *William Chandler, Republican,* by Leon B. Richardson. *An American Democrat* (Columbia Univ. Press) is a volume of recollections of Perry Belmont, the banker, politician, diplomat. The life of Vice President Thomas Riley Marshall is recorded by Charles M. Thomas (Oxford, O., Mississippi Valley Press). The much discussed adviser of Woodrow Wilson, Col. E. H. House, finds a biographer in Arthur D. Howden Smith (Funk and Wagnalls). A delightful book is the autobiography *Diplomatically Speaking* (Little Brown) by the diplomat Lloyd C. Griscom. New Jersey politics are exposed in *The Boss: Hague Machine in Action* (Houghton Mifflin), the story of Frank Hague, by Dayton D. McKean. A campaign life is *Wendell Willkie of Elwood, Indiana* (Elwood, National Book Company) by Herman O. Markey.

MEN OF DARING

The Vermont hero Ethan Allen is realistically depicted by Stewart H. Holbrook (Macmillan). *Torchbearer of the Revolution* (Princeton Univ. Press) by Thomas J. Wertenbaker deals with Bacon of Bacon's Rebellion. Commodore Joshua Barney, in *Sailor of Fortune* (Harper) by Hulbert Footner, concerns the navy in our two wars with Britain. First in a series, "Pennsylvania Lives," is a biography of *John White Geary (1819-1893),* soldier and statesman, by Harry M. Tinkcom (Univ. of Pennsylvania Press). General George B. McClellan has another portrayal in *Little Mac* (Philadelphia, Dorrance) by Clarence E. Macartney. An excellent seller is Henry Kyd Douglas' *I Rode with Stonewall* (Univ. of North Carolina Press). A group of western characters follow: *Simon Bolivar Buckner, Borderland Knight* (Univ. of North Carolina Press) is by Arndt M. Stickles; *Walter Salter, Western Torch Bearer* (Oxford, O., Mississippi Valley Press) is by Philip D. Jordan; *The Log Trail from Texas* (Doubleday, Doran) is a life of Ad Spaugh, cattleman, by Frazier Hunt; *The Last of the Bandit Riders* (Caldwell, Id., Caxton) is the tale of Matt Warner as told to Murray E. King; *Ben Hollady: The Stagecoach King* (Glendale, Calif., Clark) by J. V. Frederick tells of the overland mail of the Sixties. *A Scotch Paisano* (Univ. of California Press) is the story of Hugo Reid's life in California 1832-1882, as related by Susanna B. Dakin. Lastly is the self narrative, *Yankee Skipper* (Stokes), by Joseph A. Gainard of the ship *City of Flint,* in the news of the past year.

SPIRITUAL LEADERS

In *The Irrepressible Democrat* (Ronald), Samuel H. Brockunier deals with Roger Williams. *Jonathan Ed-*

wards (Macmillan) by Ola E. Winslow has received good reviews. The pioneer priest of the Rockies, Father De Smet, is depicted by Helene Margaret (Farrar & Rinehart), and the pioneer missionary, John Mason Peck, by Matthew Lawrence (Fortuny's). *The Life of Bishop McDevitt* (Philadelphia, Dorrance) is by Ellen M. lick. *One Who Was Valiant* (Caldwell, Id., Caxton) is the story of the great Mormon leader, Brigham Young. Vida Dutton Scudder has written of the founder of the Order of the Holy Cross, Father Huntington (Dutton). Present day characters are the subjects of the following: *One Foot in Heaven* (Whittlesey), life of a minister told by his son, Hartzell Spence; George B. Gilbert's autobiographical *Forty Years a Country Preacher* (Harper); *Saints and Sinners,* the autobiography of a 'liberal minister,' by Charles F. Dutton (Dodd, Mead).

LEADERS OF CAUSES

A scholarly and readable work by Richard W. Leopold deals with the active life of the social reformer, Richard Dale Owen (Harvard Univ. Press). *The Path I Trod* is by Florence Vincent Powderly (Columbia Univ. Press), early leader of the Knights of Labor. Two biographical volumes are largely concerned with the feminist movement: *Created Equal* (Day) is the life of Elizabeth Cady Stanton, and *Challenging Years* (Putnam) the self story of Harriet Stanton Blatch. *If You Don't Weaken* (Holt), by Oscar Ameringer, is the autobiography of the socialist and labor journalist, and includes a foreward by Carl Sandburg. *Dusk of Dawn* (Harcourt, Brace) is the story of W. E. Burghardt Du Bois, negro leader. The labor movement again is the setting of Ella Reeve Bloor's *We Are Many* (International). Walter Nelles tells of a little known man, including his interest in the Civil Liberties Union, in *A Liberal in Wartime: the Education of Albert de Silver* (Norton).

VARIOUS PROFESSIONS

Medical.—The flood of biographies and memoirs of members of the medical profession continues. The outstanding one is *Hugh Young, a Surgeon's Autobiography* (Harcourt, Brace). Another, also with a Johns Hopkins setting, is J. M. T. Finny's autobiography *A Surgeon's Life* (Putnam). One of the most provocative books of the year is the autobiography of the physician and scientist, Hans Zinssen, since deceased, who entitled his book *As I Remember Him, the Biography of R. S.* (Little, Brown). Alice R. Colver and Helen Brant Birdsall wrote *Dream within her Hand* (Philadelphia, Macrae-Smith), the story of Dr. Cornelia Chase Brant who became a famous doctor. Varied experiences are told by the Americanized Eugene de Savitsch in his *In Search of Complications* (Simon and Schuster). Urling C. Coe's experiences are in *Frontier Doctor* (Macmillan), while Eva G. Anderson in her *Dogteam Doctor* (Caldwell, Id., Caxton) tells of the Alaskan doctor, Joseph H. Romig. Two Americans who have followed the profession abroad are Paul W. Harrison, who writes *A Doctor in Arabia* (Day), and Katherine F. Berry, who writes *A Pioneer Doctor in Old Japan* (Revell). A veterinarian recalls his life in *"Hoss" Doctor* (Boston, Waverley House). Faye C. Lewis, a doctor and the wife of a rural Iowa doctor, writes *Doc's Wife* (Macmillan), and Ora Lewis Bradley tells her life in *A Country Doctor's Wife* (House of Field).

Legal.—Volumes dealing with legal figures include George S. Hellman's *Benjamin N. Cardozo* (Whittlesey), and the memoirs of the legal expert Samuel Williston, *Life and Law* (Little, Brown). Henry H. Curran's *Magistrate's Court* (Scribner), the autobiography of the chief magistrate of New York City, and John C. Knox's *A Judge Comes of Age* (Scribner) by the senior United States District Judge for the Southern District of New York, recall many cases of interest. Rupert Hughes wrote a timely book on Thomas E. Dewey entitled *Attorney for the People* (Houghton Mifflin).

Journalism.—Well received are the

reminiscences entitled *Country Editor* (Doubleday, Doran), by Henry Beetle Hough of Martha's Vineyard. *Father Was an Editor* (Norton) by Joshua K. Bolles, is set in New Milford, Conn. Clayton Rand, also a newspaperman in a small town, has the title *Ink on My Hands* (Carrick and Evans) for his memoirs. *Yankee Reporter* (Funk) is the autobiography of S. Burton Heath, a Pulitzer prize winner for distinguished reporting. Forty years as literary editor of the *Boston Transcript* are reviewed by Edwin F. Edgett in *I Speak for Myself* (Macmillan). *Chip Off My Shoulder* (Princeton Univ. Press) is the provocative reminiscences of Thomas L. Stokes, largely in the Harding-Franklin Roosevelt period. St. Clair McKelway presents gossip: *The Life and Times of Walter Winchell* (Viking). The editor and presidential aspirant, Frank Gannett, is the subject of a work by Samuel Williamson (Duell, Sloan and Pearce). *I've Met the Folks You Read About* (Dodd, Mead) covers 30 years of reporting by Labert St. Clair. *Press Pass* (Dutton) by Kathleen Ann Smallzried is, of course, the autobiography of a newspaper woman, while *My Shadow in the Sun* (Carrick and Evans) is the adventure of Frances Davis, woman war correspondent.

LITERARY FIGURES

Usually called the first American novelist, Charlotte Lennox is studied in a volume by Gustavus H. Maynadier (Harvard Univ. Press). Nathaniel Hawthorne is reinterpretated by Edward Mather (Crowell). The Massachusetts writer of the mid-nineteenth century, Josiah Gilbert Holland, is analysed in relation to his times by Harry H. Peckham (Univ. of Pennsylvania Press). That unusual figure, Margaret Fuller, is portrayed by Mason Wade in a volume subtitled *Whetstone of Genius* (Viking). J. Frank Dobie includes in his biography *John C. Duval, First Texas Man of Letters* (Dallas, Southwest Review) some of the writer's unpublished works. *The Life and Letters of Henry Cuyler Bunner* (Duke Univ. Press) is by Gerald E. Jensen. Really a third volume of his *Autobiography* is *Mark Twain in Eruption: Hitherto Unpublished Pages about Men and Events* (Harper) edited by Bernard De Veto.

Elbert Hubbard, Genius of Roycroft (Stokes) is by David A. Balch. *Period Piece* (Houghton Mifflin) by Jenny Ballou is the life of Ella Wheeler Wilcox. Another appreciation of the writer of the Southwest, Mary Austin, is entitled *The Beloved House* (Caldwell, Id., Caxton) by its author, Thomas M. Pearce. *Still Small Voice* by August Derleth is the biography of the midwest novelist, Zona Gale. Ernest Poole entitles his life as a novelist and worker in social movements *The Bridge* (Macmillan). Alice Hegan Rice writes her reminiscences in *The Inky Way* (Appleton-Century), a pleasant production. H. L. Mencken starts his autobiography with the volume *Happy Days: 1880-1892* (Knopf). The negro poet, Langston Hughes, has called his interesting autobiography *The Big Sea* (Knopf). The novelist, Katharine Brush, gives a lively self portrayal in *This is on Me* (Farrar & Rinehart). Jean Thomas, collector of ballads and known as the "Traipsin' Woman," entertains with her *The Sun Shines Bright* (Prentice, Hall).

ARTISTS OF VARIED TYPES

An interesting volume is the biography of the now little known midwest frontier painter *George Caleb Bingham* (Dodd, Mead) by Albert Christ-Jane. Written in his nineties is *Time Exposure* by William Henry Jackson, pioneer photographer. An early news photographer is recalled by Cecil Carnes in *Jimmy Hare* (Macmillan). *Growing Pains* (Coward, McCann) is the early years of the book illustrator, Wanda Gag. *Song in His Heart* (Chicago, Field) is the story of the songwriter, singer, actor Chauncey Olcott, by Rita Olcott. *Fessenden, Builder of To-morrow* (Coward-McCann) is Helen M. Fessenden's story of the pioneer in radio. With the reminiscences of many singers in Elizabeth Harbison David's *I Played Their*

Accompaniment (Appleton). Lillian Russell, still popular, is the subject of a book by Parker Morrell (Random House). The Museum of Modern Art in New York has published two small volumes: Iris Barry's *D. W. Griffith: American Film Maker,* and Alistair Cooke's *Douglas Fairbanks.* Again in the public eye with a screen triumph, Charlie Chaplin is presented in a volume by Gerith von Ulm (Caldwell, Id., Caxton). One of our leading actresses, Helen Hayes, is revealed through *Letters to Mary* (Random House) by her mother, Catherine Hayes Brown.

BUSINESS MEN

A New York business man (1784-1862) is the subject of Robert T. Thompson's *Colonel James Neilson* (Rutgers Univ. Library). The manufacturer and advocate of land reform, Joseph Fels, is recalled by his wife Mary Fels (Doubleday, Doran). *Share the Profits!* is the life of Richard W. Wolfe, by William H. Stuart (Chicago, Donahue). *Five and Ten* by John K. Winkler is, of course, the biography of F. W. Woolworth (McBride). An outstanding work by one of the leading biographers, Allan Nevins, is the two-volume *John D. Rockefeller* (Scribner).

ADVENTURERS AND NATURALISTS

The eighteenth century botanists and explorers, John and William Bartram, are found in the welcome work by Ernest Earnest (Univ. of Pennsylvania Press). The same press published the life of John Alfred Brashear (1840-1920), scientist and humanitarian, by Harriet A. Gaul and Ruby Eiseman. Charles Schubert and Clara M. La Verne have collaborated in writing the life of O. C. Marsh, pioneer in paleontology, leader of several scientific expeditions. (Yale Univ. Press). Not long after his dramatic death, comes *Richard Halliburton: His Story of His Life's Adventures as Told in Letters to His Mother and Father* (Bobbs, Merrill). Including numerous examples of his animal drawings is Ernest Thompson Seton's *Trail of an Artist-Naturalist* (Scribner). *The Wilderness Lives Again: Carl Akeley and the Great Adventure* (Dodd, Mead) is by his wife, Mary L. J. Akeley. *I Married Adventure* (Lippincott) is by Osa Johnson, widow of the explorer, Martin Johnson. This is one of the more popular books of the year.

EDUCATORS

Dorothy McCuskey's *Bronson Alcott: Teacher* (Macmillan) attempts to analyse the visionary pedagogue and father of Louisa M. Alcott. Dumas Malone's *Edwin A. Alderman* (Doubleday, Doran) is a picture of the president of the University of Virginia, who is called the second founder. President of Roberts College, Istanbul, for many years, Caleb F. Gates in *Not to Me Only* (Princeton Univ. Press) tells of his long and interesting life. Abraham Flexner's *I Remember* (Simon and Schuster) reviews a career varied in its activities and climaxed by his founding of the Institute for Advanced Study at Princeton. Frank Kingdon has done well to record the life of John Cotton Dana, pioneer and successful librarian (Newark Public Library). The second volume of the autobiographical *Across the Busy Years* (Scribner) by Nicholas Murray Butler reveals his amazingly active life and interest in national and international affairs.

FOREIGN SUBJECTS

Alexander the Great (Houghton Mifflin) by Lewis V. Cummings, begins chronologically this rather large group, followed by John W. Vandercook's *Empress of the Dusk: a Life of Theodora of Byzantium* (Reynal, Hitchcock). *Aretino: Scourge of Princes* (Reynal, Hitchcock) by Thomas Caldecott Chubb, brings us to the Renaissance, an excellent work. Joseph H. Fichter studies the sixteenth century Spanish philosopher Francis Suarez in *Man of Spain* (Macmillan).

Quite different is Stanley Vestal's *King of the Fur Traders* (Houghton Mifflin), a lively book on the deeds and deviltry of Pierre Esprit Radisson, French explorer and a founder of the Hudson Bay Company. *That Frenchman, John Calvin* (Revell) is by Robert W. Miles. A nineteenth century French religious character is Benadette of Lourdes, now a saint, of whom Margaret G. Blanton has written one biography (Longmans, Greene) while another with the title *The Sublime Shepherdess* (Messner) is by Frances Parkinson Keyes.

Three biographical and critical works are *Ronsard, Prince of Poets* (Oxford) by Morris Bishop; A. F. B. Clark's *Jean Racine* (Harvard Univ. Press). The biographer, Henry Dwight Sedgwick, has chosen for his latest subject, *Madame Recamier* (Indianapolis, Bobbs, Merrill). *Lazare Carnot: Republican Patriot* (Oxford, O., Mississippi Valley Press) is by Huntley Dupre. The latest French figure to be mentioned in this group is the painter Ingres who is studied by Walter Pach (Harper).

Lucy and Richard Stebbins call their study of Carl Maria von Weber, *Enchanted Wanderer* (Putnam). *Clara Schumann* (Random House) is an entertaining biography by John N. Burk. Madeleine Goss aptly calls her life of Maurice Ravel, *Bolero* (Holt). *"I Built a Temple for Peace"* is the pathetic title of Edward B. Hitchcock's life of Eduard Benes. Ernest G. Simmon's *Dostoevski* (Oxford) and Eugene Lyon's *Stalin* (Lippincott) make up the group of Russian subjects. Another very readable book is *Hungarian Rhapsody* (Indianapolis, Bobbs, Merrill), the life of the actress, Camille Feher de Vernet, by Bertita Harding.

The English group starts with H. F. M. Prescott's *A Spanish Tudor: the Life of "Bloody Mary"* (Columbia Univ. Press), followed by a life of Queen Elizabeth by Frederick E. Chamberlin (Dodd, Mead), and Howard Coxe's *A Stranger in the House* (Greystone), a life of Caroline of Brunswick, Queen Consort of George IV. *John Gay, Favorite of the Wits* (Duke University) is by William H. Irving. Then follow *Christopher Marlowe* (Oxford) by Frederick S. Boas, and *Jonathan Swift* (Liveright) by Frank S. Goodwin. Two portrayals of Sheridan are *Here Lies Richard Brinsley Sheridan* (Dutton) by Kenelm Foss, and *Sheridan at Drury Lane* (Stokes) by Alice Glasgow. John C. Long has given us a timely book, *Mr. Pitt and America's Birthright* (Stokes) A little known 18th century English gentlemen is found in *George Keate, Esquire* (Univ. of Pennsylvania Press) by Kathryn G. Dapp. A man and a period are found in Willard Connely's *The Reign of Beau Brummel* (Greystone).

The group works on nineteenth and twentieth century subjects are of high level: William Irvine's *Walter Bagehot* (Longmans, Green); Margaret Armstrong's *Trelawney* (Macmillan); the two-volume and definitive *Shelley* (Knopf) by Newman Ivey White; Lloyd W. Eshleman's *A Victorian Rebel* (Scribner), a portrayal of William Morris; *Hardy of Wessex* (Columbia Univ. Press) by Carl J. Weber; Herbert Gorman's *James Joyce* (Farrar & Rinehart); and John D. Gordon's *Joseph Conrad* (Harvard Univ. Press).

MISCELLANEOUS

Very varied are the subjects of the books listed in this group. *A Grandfather for Benjamin Franklin* (Boston, Meador) by Florence B. Anderson reveals the settler of Nantucket, Peter Folger, father of Franklin's mother. A group of childhood reminiscences include Margaret McBride's *How Dear to My Heart* (Macmillan), placed on a Missouri farm; George W. Ogden's *There Were No Heroes* (Dodd, Mead) is set in eastern Kansas; Flo V. Menninger's *Days of My Life: Memories of a Kansas Mother and Teacher* (R. R. Smith) is an excellent bit of Americana; and, quite different, *A Quaker Childhood* (Yale Univ. Press), the recollections of Helen Thomas Flexner in the seventies and eighties of Baltimore. Two tragic but triumphant stories are Alice Bertz's *I Begin Again* (McGraw, Hill), the story of one blind; and Perry Burgess' *Who Walk Alone* (Holt), a leper's narrative.

My First Eighty Years (Chicago,

Argus Books) is the autobiography of a Russian Jew immigrant, Bernard Horwich. The active life of Eleanor Roosevelt is told by Ruby Black (Duell, Sloan and Pearce). Michael Strange is the pseudonym for Blanche Oelrichs who has recorded in *Who Tells Me True* (Scribner) much of the society life since the nineties. *The Strange Lives of One Man* (Philadelphia, Winston) by Ely Culbertson, is the self portrayal of the bridge player. An unusual narration is Robert G. Elliott's *Agent of Death* (Dutton), the memoirs of an executioner. As pictures of prize fighting, one finds *"Brown Bomber"* (Philadelphia, Dorrance), John G. Van Deusen's story of Joe Louis, and Jack Dempsey's Autobiography. *Round by Round* (Whittlesey). Entertaining for its character portrayal and its place and period preservation is Rebecca Yancey William's story of her father, Captain Bob Yancey, lawyer, in the *Vanishing Virginian.*

TRAVEL

By Elizabeth T. Platt

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ALASKA AND NORTHERN CANADA

Alaska Challenge (Dodd, Mead) by Ruth and Bill Albee is an account of a trek from Prince George, B.C., to Liard Post, Atlin and thence through the Yukon to Fairbanks, and of the experiences in teaching Eskimos at Wales, Alaska. Richard Finnie's *Lure of the North* (McKay) contains impressions gained through years of personal travel in the Canadian Arctic, and particular emphasis is laid on the profound social changes taking place. The story of missionary work about Hudson Bay and north to Baffin Land, furthered by the use of an airplane, is told by Father Paul Schulte in *The Flying Priest over the Arctic* (Harper).

UNITED STATES

Work has continued on the American Guide Series (see The American Year Book, 1939), and during 1940 volumes on Arizona, Georgia, New York, Ohio, Oregon, Texas, and Virginia were issued, also many more local guides. Likewise four volumes have been added to the River of America Series (Farrar and Rinehart): W. E. Wilson, *The Wabash;* H. E. Wildes, *The Delaware;* C. B. Davis, *The Arkansas;* and James Gray, *The Illinois.*

MEXICO AND CENTRAL AMERICA

There has been a revised and enlarged edition of Frances Toor's handy pocket sized *Guide to Mexico* (McBride). Gregory Mason's *South of Yesterday* (Holt) tells of archaeological research in Mexico, Central America, and northern South America. *Jungle in the Clouds* (Duell, Sloan and Pearce) is V. W. von Hagen's story of a successful quest in Honduras for the quetzal.

WEST INDIES

A new edition is now available of the standard work, *The Pocket Guide to the West Indies* (Chemical Publishing Co.) by Sir Algernon Aspinall. G. C. Klingel's *Inagua: Which is the Name of a Very Lonely and Nearly Forgotten Island* (Dodd, Mead) gives an account of the expedition from the American Museum of Natural History to this little known island in the Bahamas. Daisy Reck's *Puerto Rico and the Virgin Islands* (Farrar and Rinehart) is intended as "an informal introduction to the ways of life among the . . . Islanders in the American Caribbean."

SOUTH AMERICA

P. R. Cutright has divided his work, *The Great Naturalists Explore South*

América (Macmillan), into two parts: "first a resumé of the travels and experiences of great naturalists in South America . . . and second a series of chapters on several of the mammals, birds, reptiles, fish, and insects indigenous to South America." In *Southward Ho! A Treasure Hunter in South America* (Doubleday, Doran) William LaVarre tells some of his experiences ranging from Yucatan to Patagonia. A. R. Hager in *Wings Over America* (Macmillan) has given an enthusiastic account of a flight down the South American west coast and up the east coast with notes on local development of commercial aviation. Ernest Young's *South American Excursion* (Longmans, Green) tells of his South American tour from eastern Brazil through the lake region of Argentina to Chile and thence north to Colombia. A guide for an east coast cruise has been prepared by S. A. Clark. *The East Coast of South America: How to Get the Most out of Your Trip to Brazil, Uruguay, Paraguay and Argentina* (Prentice-Hall).

In *Seven Keys to Brazil* (Funk and Wagnalls) Vera Kelsey analyzes seven regions of Brazil with their key cities, discussing under each region types of culture and the city. *The Jungle Route* (Tremayne) is the story of the construction of the Madeira-Mamoré Railway in Brazil, told by F. W. Kravigny, one of the construction party in 1909-1910. A. F. Tschiffely who earlier wrote *Tschiffely's Ride*, now writes of "a journey through Patagonia and Tierra del Fuego" in *This Way Southward* (Norton). *White Water and Black Magic* (Holt) is R. C. Gill's plea for functional exploring based on his life on a hacienda on the Pastaza with particular emphasis on jungle pharmaceutics and curare in particular. V. W. von Hagen's *Ecuador the Unknown* (Oxford) is a record of two and a half years' travels in Ecuador and the Galápagos Islands.

AFRICA

L. P. Cullen's *Beyond the Smoke that Thunders* (Oxford) is a charming account of six years at the Roan Antelope Copper Mines, Northern Rhodesia. *My Vanished Africa* (Yale Univ.) tells of P. W. Rainier's life in South Africa from the end of the last century to 1919 and includes an account of the German Southwest African campaign. Livingstone letters, written between the ages of 30 and 43, are now available in *Some Letters from Livingstone, 1840-1872,* (ed. by David Chamberlin with an introduction by R. Coupland [Oxford]). Alan Villiers' *Sons of Sinbad* (Scribner's) is "an account of sailing in the Arab dhow [*Triumph of Righteousness*] in the Red Sea, around the coasts of Arabia, and to Zanzibar and Tanganyika; pearling in the Persian Gulf; and the life of the shipmaster, the mariners and merchants of Kuwait." André Demaison's adventures collecting animals in West Africa are to be found in *The New Noah's Ark* (Macmillan).

ICELAND

F. D. Ommanney's *North Cape* (Longmans, Green) is a tale of life on board a fishing trawler sailing from England to North Cape, Iceland.

ASIA

From China comes Mme. Chiang Kai-Shek's account of her war-torn country, including what China is thinking today, progress in China, new schools for old, leaves from a book of travels in China's southwest (*This is Our China,* Harper) and Kumut Chandruang's *My Boyhood in China* (Day), a "picture of a comfortable upper class Siamese family." In *Through China's Wall* (Houghton Mifflin) Graham Peck tells of, and illustrates, his journey from Peking into the Gobi Desert along the old Silk Road, living for six weeks with a Mongol family, wintering in Szechuan, and on to the Tibetan border. Eileen Bigland's *Into China* (Macmillan) is about her journey over the Yunnan Burma road from Lashio into Chungking, and Nicol Smith's *Burma Road* (Bobbs-Merrill) is an anecdotal account of his travels between Lashio and Yun-nan-fu. Sven Hedin's account of Lake Nor, *The Wandering Lake* (Tr. from the Swedish) (Dutton) is the third volume in the trilogy dealing with his Central Asian expedition, 1933-35 (*Flight of "Big Horse"* and *The Silk Road*). Ahmad Kamal's *Land without Laughter* (Scribner's) is the impression of an American-born Muslim of Tartar stock on traveling through Turkestan, Sinkiang, the Gobi, and Mongolia.

There is much of interest concerning Tibetan culture and Tibetan Buddhism in Marco Pallis' *Peaks and Lamas* (Knopf), a story of two Himalayan journeys, 1933, 1936. *Helvellyn to Himalaya,* (Macmillan) by F. S. Chapman includes "an account of the first ascent to Chomolhari." India as seen by a young English artist is described in Philip Steegman's *India Ink* (Morrow). Carveth Wells in *North of Singapore* (McBride) tells of his adventures in 1939 journeying from Japan, China, and Singapore to the Malay jungle. For Arabia there is another of Freya Stark's delightful works, *Winter in Arabia* (Dutton) and also a record by a Johns Hopkins graduate of three decades spent as a practising physician in Muscat, P. W. Harrison's *Doctor in Arabia* (Day) F. J. Olcott's *The Bridge of Caravans* (Wilde) tells of "626 miles of adventure, Cypriote, Turkish, Syrian and Palestinian," and Margaret Boveri's *Minaret and Pipe Line* (Tr. from the German) (Oxford) tells of "yesterday and today in the Near East."

POLAR

The object of Gunnar Seidenfaden's *Modern Arctic Exploration* (Hale, Cushman and Flint) has been "to describe something of the revolution which has taken place in the manner of investigation [of the Polar Regions] during the past twenty-five years." *Land of Good Shadows* (Day) by H. C. Washburne and Anauta is the story of the life of a Baffin Island Eskimo and her adjustment to life in the United States (Indianapolis). *Greenland Lies North* (Macmillan) by W. S. Carlson is a record of a winter spent in the Upernivik section of Greenland written by one of the members of the Greenland Expeditions of the University of Michigan. The diary of one of the Lady Franklin Bay Expedition, 1881-84, is contained in D. L. Brainard's *Six Came Back* (Bobbs-Merrill). *"Two Men in the Antarctic: An Expedition to Graham Land, 1920-1922* (Macmillan, 1939) by T. W. Bagshawe is the tale of a year spent in the Antarctic by two very young men; appendices give the results of scientific observations.

GENERAL

In *Approach to the Hills* (Dutton) by C. F. Meade are tales of mountaineering and of the author's experiences in the Alps and Himalayas. The story of a three years' trip around the world on the 45 foot ketch *Hurricane* is told by Ray Kauffman in *Hurricane's Wake* (Macmillan).

PACIFIC

There have been two histories of exploration of the Pacific—H. W. Van-Loon's *The Story of the Pacific* (Harcourt, Brace) covers the period from Balboa to Captain Cook with chapters on the prehistoric Pacific and the Polynesians' eastward voyages. Felix Riesenberg's *The Pacific Ocean* (Whittlesey House), the first of a proposed series on Oceans of the World, is a popular account of the history of exploration of the Pacific from Balboa to the crossing of the ocean by air in 1935. I. D. Andrews *Latitude 18° South* (Torch Press) tells of a "sojourn in Tahiti." An account of the second Archibold New Guinea Expedition, 1936-1937, organized for biological exploration, is given by Richard Archibold and A. L. Rand in *New Guinea Expedition: Fly River Area, 1936-1937* (McBride). In *Sailing the Sulu Sea* (Dutton) Admiral David Potter has recounted seven of his adventures in the Philippines 40 years ago.

BIOGRAPHICAL TRAVEL

The Fire Ox and Other Years is Suydam Cutting's record of 15 years of travel which included Turkestan, Ethiopia, Assam, Tibet, Galápagos, Celebes, Nepal, and Upper Burma.

M. L. J. Akeley's *The Wilderness Lives Again* (Dodd, Mead) is the story of Carl Akeley's life and achievements. A biography of Gertrude Bell (Macmillan) has been prepared by Ronald Bodley and Lorna Hearst. *Pilgrim's Way: An Essay in Recollection* (Houghton) is Lord Tweedsmuir's delightfully and skilfully written autobiography. *I Married Adventure* is the story of "the lives and adventures of Martin and Osa Johnson" (Lippincott) as told by the latter. Salvador de Madariaga, in a scholarly analysis of the Columbus question, concludes that Columbus belonged to a family of Catalan Jews, *Christopher Columbus, Being the Life of the Very Magnificent Lord Don Christóbol Colón* (Macmillan).

HISTORICAL

"Further mysteries of the Arctic" are studied by Vilhjalmur Stefansson in *Ultima Thule* (Macmillan). He discusses the problem of "Pythius and Ultima Thule, Did Columbus visit Thule, Pytheas and Columbus on Arctic Climate." H. R. Holland, who earlier published the results of his investigation of the Kensington Stone now gives "an account of Norse discoveries and explorations in America 982-1362" in *Westward from Vinland. Portuguese Voyages to America in the Fifteenth Century* is S. E. Morison's critical examination of Portuguese claims to the pre-Columbian discovery of parts of America. *Unpathed Waters, Studies in the Influence of the Voyages on Elizabethan Literature* by R. R. Cawley is a companion volume to his earlier work, *The Voyages and the Elizabethan Drama,* 1938. *Tabeau's Narrative of Loisel's Expedition to the Upper Missouri,* (ed. by A. H. Abel, University of Oklahoma Press) is a scholarly presentation of the memoirs of a French-Canadian voyageur employed to develop the fur trade with Indian tribes of the upper Missouri, 1803-1804. Also on an early American development are Cleve Hallenbeck's *Álvar Núñez Cabeza de Vaca* (Clark) and G. P. Hammond and Agapito Rey's *Narratives of the Coronado Expedition, 1540-1542* (Univ. of New Mexico Press).

CRITICISM AND BELLES LETTRES

By Peter Monro Jack

Lecturer and Critic

LITERARY CRITICISM

The most important critical book of the year is Van Wyck Brooks's *New England: Indian Summer, 1865-1915* (Dutton), the continuation of his history of the New England mind and literature. The main personalities are Howells, Henry James, and Henry Adams, and the theme is the loss of faith and vitality; criticism replacing creativeness. *Minority Report* is a collection of literary essays, reviews, etc. by Bernard DeVoto, the writer of The Easy Chair in Harpers; they are vigorous and aggressive articles on American life and literature. Mr. DeVoto has edited the hitherto unpublished pages from Mark Twain's diaries and random comments. They have been selected, exercised, and rearranged in the book called *Mark Twain in Eruption* (Harper), where we learn that Mark Twain thought Theodore Roosevelt insane, Carnegie pathetic, Bret Harte a villain, etc., and there are remarks on Howells, Grant, Kipling, and others.

This Generation is a selection of British and American Literature from 1914 to the present, with historical and critical essays by George K. Anderson and Eda Lou Walton (Simon & Schuster). A *Preface to World Literature* by Albert Guerard (Holt) shows the trend toward the reading of world books. *From Donne to Dryden* is a critical study of the change in 17th century poetry, from passion and extravagance to common sense and propriety, by R. L. Sharp (North Carolina). Alfred Noyes's *Pageant of Letters* is half literary, half controversial (Sheed and Ward). *Reality and the Poet in Spanish Poetry* by Pedro Salinas contains the important lectures for the Turnbull Poetry Foundation (Johns Hopkins Press). An account of English actors from newspapers is Sybil Rosenfeld's *Strolling Players and Drama in the Provinces 1660-1765* (Macmillan).

ON MODERN POETRY

The Spiritual Aspects of the New Poetry by Amos Wilder (Harper) is the reaffirmation of the Jewish-Christian tradition as the basis for the future of poetry. *Poetry and the Modern World, 1900-1939* by David Daiches (Chicago), is on the Imagists, Georgians, Eliot and the Christian faith, Auden and the possibility of a new socialist value in poetry. *Directions in Modern Poetry* by Elizabeth Drew (Norton), a sympathetic record of the difficulty of poetry in the modern world, with illustrations; not particularly critical. John Masefield writes a tribute to the late W. B. Yeats in *Some Memories of W. B. Yeats* (Macmillan). Louis MacNeice writes of the *Poetry of W. B. Yeats* in relation to his contemporaries (Oxford).

THE POLITICAL ESSAY

In *The American Stakes* (Carrick and Evans), John Chamberlain writes essays and articles on democratic liberalism. Edmund Wilson writes a "Study in the Writing and Acting of History" in *To the Finland Station* (Harcourt, Brace), with studies of Michelet, Renan, Taine, Anatole France, Marx, Lenin, as representing the bourgeois revolutionary tradition, the Utopian and scientific socialists, and the Russian revolution. Widely read was Anne Morrow Lindbergh's short essay *The Wave of the Future* (Harcourt, Brace), seeming to acquiesce in Nazi domination and American pacifism.

René de Chambrun's *I Saw France Fall* (Morrow), by Laval's son-in-law, blames the Front Populaire, believing that France did not work hard enough. André Maurios' *Tragedy in France* (Harper, trans.) is a moving record and a plea for sympathy for unoccupied France. *Paris France* (Scribner's) is Gertrude Stein's earnest and sad homage to Paris where she lived for 40 years.

Thinking Aloud in War-Time is Leslie D. Weatherhead's (a London preacher's) case against Hitler (Abingdon). *The Challenge of Redemptive Love* (Abingdon) is an essay against war by Toyohika Kagawa, translated from the Japanese. J. B. Priestley published his series of informative sketches of England now, in *Britain Speaks* (Harper), by the novelist who is heard by millions of radio listeners. Clare Boothe writes much inside information and intelligent comment in *Europe in the Spring* (Knopf).

Leonard Woolf, the English literary critic, turns to a political essay in *Barbarians: Within and Without* (Harcourt, Brace), on the eternal battle between freedom and violence. H. G. Wells writes on the necessity of planning now for a collective socialism through democratic processes after the war in the *New World Order* (Knopf). T. S. Eliot believes that only the Christian idea can save us from paganism and barbarism in *The Idea of a Christian Society* (Harcourt, Brace). John Strachey writes a program for turning capitalism into socialism in *A Program for Progress* (Random). Lancelot Hogben's *Dangerous Thoughts* (Norton) concerns the claims of science in the education of the present generation. Sir Alfred Zimmern believes in liberalism and progress in his *Spiritual Values* (Oxford). *Shall Not Perish From the Earth* is Ralph Barton Perry's philosophical essay on democracy and totalitarianism (Vanguard). *Yesterday is Dead* is an analysis of our times by Stuart Cloete, the South African novelist (Smith and Durrell).

Isolated America by Raymond Leslie Buell (Knopf) is against isolation.

A Foreign Policy for America is in favour of isolation, by Charles Beard (Knopf). *The United States of Europe* is an argument by Alfred M. Bingham, editor of *Common Sense* magazine, in favour of a federation of all European countries except the Soviet Union (Duell, Sloan and Pearce). Articles by Maxim Gorki, written for the Soviet 1929-1935, are published by International in *Culture and the People.*

THE FAMILIAR ESSAY

The selection of the year's best essays, edited by Erich Walter, is now published by Scott, Foresman, *1940 Essay Annual.* Lin Yutang's *With Love and Irony* (Day), little essays on the small pleasures of life, was the most popular book of essays. Oscar Levant's *A Smattering of Ignorance* (Doubleday, Doran) made more available through his radio program of Information Please, is witty, anecdotal, musically informative, and autobiographical. Harold J. Laski is against class rule but admits that aristocracy at its best can be admirable, and he instances Justice Holmes as "the greatest judge of the English-speaking world" in *The Danger of Being A Gentleman* (Viking). *Gentlemen Behave* is Charles Manson's book of manners for the younger generation (Messner).

The Art of Living is by Andre Maurois (Harper), essays on human conduct, marriage, family life, friendship, thinking, working, happiness, making a fortune, growing old, dying —each considered as an art in itself. In *Some Old Portraits,* Booth Tarkington writes biographical essays on portraits he has seen: Jonson, Milton, Newton, etc. (Doubleday, Doran).

J. B. S. Haldane writes of a variety of subjects from his files of broadcasts, periodicals, and miscellanea in *Adventures of A Biologist* (Harper). Elmer Davis, the radio commentator on the war, steers clear of it in *Not To Mention The War* (Bobbs-Merrill). H. V. Morton's *Ghosts of London* (Dodd, Mead) is an evocation of the old London, much of it not now to be found. Sean O'Faolain writes *An Irish Journal* (Longmans, Green) and *Come Back to Erin* (Viking), the latter critical of Ireland's indifference after her freedom has been won.

Fables for Our Time and Famous Poems Illustrated is James Thurber's newest diversion, to be compared with Aesop, but with unexpected drawings and morals (Harper). *Where Are the Customers' Yachts?* by Fred Schwed Jr. is an irreverent, amusing satire on Wall Street (Simon & Schuster). In *The Well-Tempered Listener* Deems Taylor collects his radio essays on music (Simon & Schuster). V. Sackville-West writes about her farm in Kent in *Country Notes* (Harper). William Lyon Phelps writes an essay on the necessity of character and religion rather than sex instruction in *Marriage* (Dutton). Wyndham Lewis, an Englishman born in America and now living here, writes wittily and critically in *America, I Presume* (Howell, Soskin).

LETTERS

A good anthology is *A Treasury of the World's Great Letters,* from ancient days to our own time, selected, edited and integrated by M. Lincoln Schuster (Simon and Schuster), more than 150 of the most memorable letters of all time. The great edition of Walpole's Letters continues with *Horace Walpole's Correspondence with Madame Du Deffand,* vols. III to VIII, edited by Lewis and Smith, the second installment of the Yale University Press edition. *Selected Letters of Edwin Arlington Robinson* is published by Macmillan. M. D. Herter Norton translates the *Wartime Letters of Rainer Maria Rilke* (Norton), from 1914-1921, during his unproductive years. An important book is *Letters on Poetry,* from W. B. Yeats to Dorothy Wellesley, with discussion of Yeats's selection for the *Oxford Anthology of Modern Verse,* and advice, criticism, and technical information for poets, and a picture of Yeats just before he died (Oxford). A letter that was read by many thousands is *An Airman's Letter to His*

Mother, found in the belongings of a young R.A.F. pilot who was killed in June, 1940. First printed in the *London Times* editorial page, there was a popular demand for it in pamphlet form. It is simple and inspiring in its declaration of faith. *Joseph Conrad's Letters* to Mme. Poradowska, a novelist, 1890 to 1920, is edited by John A. Gee and Paul J. Sturm.

READING AND WRITING

How to Read a Book by Mortimer J. Adler (Simon and Schuster) aroused much controversy during the year. Its purpose is a return to a liberal education through the classics, with a listing of the hundred greatest books in the world to be read for self-improvement. *Books That Have Changed Our Minds,* edited by Malcolm Cowley and Bernard Smith (Doubleday, Doran), tells, for instance, how George Soule was influenced by Freud, Max Lerner by Lenin and Beard, Lewis Mumford by Spengler, Louis Kronenberger by Henry Adams, etc. *Books and You* by Somerset Maugham (Doubleday, Doran) contains three essays on the English novelist's approach to reading as an art, with a list of English, European, and American books.

Words That Won the War is a study in the use of propaganda by James R. Mock and Cedric Larson (Princeton). *Fighting Words* (ed. Donald Ogden Stewart, Harcourt, Brace) is a compilation of informal speeches by members of The League of American Writers (Dorothy Parker, Vincent Shean, Dashiel Hammett, Sylvia Townsend Warner, etc.) on the problems of the contemporary writer, with practical advice. It includes the radio, movies, pulp magazines, as well as the traditional outlets for writing. *Working With Words* by Lorine Pruette (Funk and Wagnalls) will be useful for inexperienced writers. *Poets' Handbook* by Clement Wood advises on rhyming, revising, marketing (Greenberg).

The Censor Marches On by Morris Ernst and Alexander Lindey (Doubleday, Doran) contains examples of censorship of books, movies, birth control pamphlets, etc. Written by two lawyers who have fought for the freedom of publication. Ernest Weekley gives information about our Christian names in *Jack and Jill* (Dutton). *The Readers Digest Reader* is a selection by Theodore Roosevelt and the staff of the *Readers Digest* from 18 years of selecting from American magazines (Doubleday, Doran).

ESSAYS IN PHILOSOPHY

A Preface to Metaphysics by Jacques Maritain contains seven lectures on Thomism (Sheed and Ward). *Scholasticism and Politics* by Jacques Maritain, a translation, (Macmillan) is a collection of studies in Marxism, Nazism, Freud, the Thomists, etc., translated and edited by Mortimer Adler. *Problems for Thomists* by Mortimer J. Adler (Sheed and Ward) is an elucidation of basic scholastic positions. *The Realm of Spirit,* on the spiritual conquest of the personal self, is George Santayana's most revealing book (Scribner's). Ernest Sutherland Bates writes of *American Faith: Its Religious, Political, and Economic Foundations* (Norton), on how religion turns into politics. *The Meaning of Happiness* covers human behaviour from oriental philosophy to the scientific theories of Jung by Alan W. Watts (Harper). *The Christian Alternative to World Chaos* by Luman J. Shafer is a plea by the chairman of the International Relations of the Foreign Missions of America (Round Table Press). *Man The Measure* by A. H. Dakin (Princeton) is a treatise, stemming from Paul Elmer More's work, on the arguments for and against Humanism.

NEWS AND REPORTING

Writing Up The News is Miriam Lundy's report of what Harry Hansen, Burns Mantle, Lucius Beebe and others think of their methods of writing (Dodd, Mead). *Since Yesterday* (Harper) is Frederick Lewis Allen's new conspectus, from 1929, the peak of the bull market, to 1939, the declaration of the present war; from Texas Guinan to *The Grapes of Wrath*. *My Native Land* is a job of social reporting by Anna Louise Strong, a Stalinist (Viking). *Americans All Over* (Day) in Jerome Beatty's account of Americans in foreign places.

What Has Happened to Europe is first-hand experience by a London Daily Telegraph journalist, Geoffrey T. Garratt (Bobbs-Merrill). *The Twenty Years' Crisis* by Edward Hallett Carr, from 1919-1939, is on the international situation, and on the death of liberalism. *Without Fear Or Favor* tells of the machinery and philosophy of journalism, by Neil MacNeil, an assistant managing editor of *The New York Times*. In *Hotel in Flight* Nancy Johnstone tells of the war in Spain, where they had kept a hotel near Barcelona.

"LIVING THOUGHTS"

The Living Thoughts Library (Longmans, Green) continues with selection of material and critical prefaces. Published in 1940 are: Spinoza by Arnold Zweig; Voltaire by Andre Maurois; Karl Marx by Leon Trotsky; Emerson by Edgar Lee Masters; Machiavelli by Count Carlo Sforza; Confucius by Alfred Doeblin; Kant by Julien Benda; Tom Paine by John Dos Passos; Pascal by Francois Mauriac; Jefferson by John Dewey. The aim is to keep alive the cultural contribution of these great figures through quotation, condensation, and explanation by important thinkers of our time.

ENGLISH LANGUAGE AND LITERATURE

By Allan G. Chester

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GENERAL

The present survey of American research in the field covered, like its predecessors, is selective. Many studies concerned with details too technical for the layman are omitted although they are often of considerable importance to the philologist and the literary historian. A complete list of such contributions will be found in the bibliography by A. C. Baugh, A. B. Harbage, and the present author in the Supplement to the *Publications of the Modern Language Association (PMLA)*.[1] The reader should also consult Hardin Craig's "Recent Literature of the English Renaissance" (*SP*), Richmond P. Bond's "English Literature, 1660-1800: A Current Bibliography" (*PQ*), Walter Graham's "The Romantic Movement: A Current, Selective and Critical Bibliography" (*ELH*), and the "Victorian Bibliography" (*MP*), compiled by the Victorian research group of the Modern Language Association, all of which except the first include foreign as well as American work. H. K. Russell, "Theses for the Year" (*South Atlantic Bull.*) lists M.A. and Ph.D. theses, published and unpublished, in English and the modern languages.

THE ENGLISH LANGUAGE

The year saw the publication of several interesting studies in this field. Arthur G. Kennedy has written on "Recent Trends in English Linguistics" (*MLQ*). Longer works include *The Psychology of English* (Columbia) by Margaret M. Bryant and Janet R. Aiken, which attempts to show how English has been socially rather than logically produced, and *The Foundations of English* by Edward D. Myers. Josephine M. Burnham has discussed "The Presentative Sentence" (*Univ. of Kansas Pub., Humanistic Stud.*), a sentence type often treated as exclamatory. Charles C. Fries, writing "On the Development of the Structural Use of Word-Order in Modern English" (*Language*), supplies statistics on the transition from free word order to fixed. "The Phonemes of Current English" have been analyzed by Kemp Malone (*Studies for William A. Read*). Leah Dennis and Archibald A. Hill have written respectively on "The Progressive Tense" and "Early Loss of [r] before Dentals" (*PMLA*). Meritt Herbert has made a study of "The Vocabulary of Sir John Cheke's Partial Version of the Gospels" (*JEGP*), while Edward Taube has considered the "German Influence on the English Vocabulary in the Nineteenth Century" (*ibid.*). A study of versification may also be mentioned in this section. In "The Influence of Morphology on Middle English Alliterative Poetry" (*JEGP*), Margaret M. Stobie attributes the changes in the character of such verse in considerable measure to the loss of inflectional endings and changes in vowel quantity in Middle English.

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[1] Periodicals are cited under the following abbreviations, the reference being always to the volume for the year covered by this review:—*PMLA*, *Publications of the Modern Language Association of America; MP, Modern Philology; MLN, Modern Language Notes; MLR, Modern Language Review; JEGP, Journal of English and Germanic Philology; SP, Studies in Philology; PQ, Philological Quarterly; ELH, A Review of English Literary History; RES, Review of English Studies; ELH, English Literary History; HLQ, Huntington Library Quarterly; SAB, Shakespeare Association Bulletin; RR, Romanic Review; MLQ, Modern Language Quarterly; JHI, Journal of the History of Ideas.* Titles appearing as theses or in the publications of universities are followed where possible by the name of the university.

GENERAL LITERATURE

Of considerable interest to students of poetry are the following studies: *Musae Anglicanae: A History of Anglo-Latin Poetry, 1500-1925* by Leicester Bradner; *Tradition and Romanticism: Studies in English Poetry from Chaucer to Yeats* by Benjamin I. Evans; *A Revolution in European Poetry, 1660-1900* (Columbia) by Emery E. Neff; and *New Poets from Old: A Study in Literary Genetics* by Henry W. Wells. David Worcester's *The Art of Satire* (Harvard) presents a theory of satire. The most considerable work of the year in the field of general English drama is Alfred Harbage's *Annals of English Drama, 975-1700* which is "an analytical record of all plays, extant or lost, chronologically arranged and indexed by authors, titles, dramatic companies, etc." Arthur E. Dubois has written on "Comedy, An Experience" (*ELH*), while Maurice J. Valency has discussed *The Tragedies of Herod and Mariamne* (Columbia) in English and other literatures. *Types of English Fiction,* edited by Hardin Craig and John W. Dodds, and *Literature and Science: An Anthology from English and American Literature, 1600-1900,* edited by Grant McColley, are admirable collections of texts in the fields indicated by the respective titles, as is also Allan H. Gilbert's *Literary Criticism: Plato to Dryden.* Godfrey Davies's "Biography and History" (*MLQ*) is a stimulating essay on the art of biography. Of interest also are Stith Thompson's "Folklore and Literature" (*PMLA*) and Archer Taylor's "Some Trends and Problems in Studies of the Folk-Tale" (*SP*).

OLD ENGLISH LITERATURE
(to 1150)

A running account of Old English Literature, interspersed with generous extracts, will be found in Margaret Williams's *Word-Hoard: Passages from Old English Literature from the Sixth to the Eleventh Centuries.* Charles W. Kennedy has translated into alliterative verse *Beowulf: The Oldest English Epic* and has supplied a critical introduction. Several special studies of Beowulf have also appeared. In "Beowulf's Arm-Lock" (*PMLA*), Calvin S. Brown suggests that Beowulf used a special wrestling hold on Grendel. In "Ecgtheow" (*MLQ*) Kemp Malone has reconstructed the life of Beowulf's father. Professor Malone has also discussed "Time and Place in the Ingold Episode of *Beowulf*" (*JEGP*) and the name and character of "Freawaru" (*ELH*). The same author's "Hagbard and Ingold", in *Essays and Studies in Honor of Carleton Brown,* is concerned with a story in Saxo Grammaticus.

"The Rome of Two Northern Pilgrims" (*Harvard Theol. Rev.*) contains an account by Francis P. Magoun of a visit to the Eternal City made by Archbishop Sigeric of Canterbury. Carleton Brown, in "*Poculum mortis* in Old English" (*Speculum*) notes the occurrences of the cup of death in Old English and solves a crux in the Exeter gnomic verses. In "Innweorud Earmanrices" (*ibid.*) Caroline Brady argues that the third catalogue in *Widsith* represents peoples who opposed the Huns and were therefore champions of the Gothic realm and followers of Eormanric. Margaret Schlauch has discussed "The 'Dream of the Rood' as Prosopopoeia" (*Essays . . . in Honor of Carleton Brown*), while Brother Augustine Philip has considered the problem of "The Exeter Scribe and the Unity of the Crist" (*PMLA*).

MIDDLE ENGLISH

Students of this period welcome the publication of the index volume of the *Census of Medieval and Renaissance Manuscripts in the United States and Canada* by Seymour de Ricci and W. J. Wilson. S. Harrison Thomson has made a study of *The Writings of Robert Grosseteste, Bishop of London, 1235-1253.* Of interest to historians as well as to students of literature are the following articles: "Elementary and Secondary Education in the Middle Ages" by Lynn Thorndike (*Speculum*), "Twelfth-Century Scholarship and Satire" by Frederick Tupper (*Essays . . . in Honor of Carleton Brown*), and "The Laicization of French and English Society in the Thirteenth Century" by J. R. Strayer (*Speculum*). In "Wynkyn de Worde and a Second French Compilation from the 'Ancren Riwle'" (*Essays . . . in Honor of Carleton Brown*) Hope E. Allen describes the contents of a *Treatise of Love* printed by Wynkyn de Worde, c. 1493. Albert C. Baugh's article on "Richard Sellyng" (*ibid.*) contains the text of the poem *Evidens to Beware* and suggests the identification of the author. In "The Authors of the Middle English Religious Lyrics" (*JEGP*), Rossell H. Robbins finds further evidence for the part played by the friars in the lyric. The same author has printed the text of "Two Fourteenth Century Mystical Poems" (*MLR*), while H. C. Schulz prints five hitherto unpublished poems in "Middle English Texts from the Bement Manuscript". Richard L. Greene notes "The Traditional Survival of Two Medieval Carols" (*ELH*), and Sanford B. Meech discusses "A Collection of Proverbs in Rawlinson MS D 328" (*MP*).

In the field of the romance "A Bibliography of Critical Arthurian Literature for the Years 1936-1939" has been prepared by John J. Parry and Margaret Schlauch (*MLQ*). Fay Fisher has made a study of *Narrative Art in Medieval Romance,* while William A. Nitze, in *Arthurian Romance and Modern Poetry and Music* (Univ. of Chicago), considers how a great poetic tradition has been built up and survives as an essential part of our Western culture. In "Walter Map's French Things" (*Speculum*), K. G. T. Webster argues for Map's authorship of French romances, such as the Lancelot. Arthur C. L. Brown has studied "Arthur's Loss of Queen and Kingdom" (*ibid.*). A regional focus for some of the romances is suggested by K. G. Webster in "Galloway and the Romances" (*MLN*). A volume of *Essays on King Horn* (Cornell) is by Walter H. French. With respect to the miracle plays, F. M. Salter has continued his study of "The Banns in the Chester Plays" (*RES*), and Brother Linus Urban Lucken has made a study of *The Antichrist and Prophets of Antichrist in the Chester Cycle* (Cath. Univ. of Amer.) "The Dramatic Unity of the 'Secunda Pastorum'" is discussed by Homer A. Watt (*Essays . . . in Honor of Carleton Brown*). Lawrence Blair has supplied "A Note on the Relation of the Corpus Christi Procession to the Corpus Christi Play in England" (*MLN*). For the late Middle English period, Ernest W. Talbert has described "A Fifteenth Century Lollard Sermon Cycle" (*Univ. of Texas . . . Studies in English*), and Samuel K. Workman has considered *Fifteenth Century Translation as an Influence on English Prose* (Princeton).

CHAUCER

The year which probably marks the 400th anniversary of Chaucer's birth is made memorable by the publication of *The Text of the Canterbury Tales, Studied on the Basis of All Known Manuscripts* (Chicago). In the preparation of this monumental work in eight volumes, John M. Manly and Edith Rickert were assisted by Mabel Dean, Helen McIntosh, and others, while Margaret Rickert provided a chapter on illuminations. Percy V. D. Shelly's *The Living Chaucer* (Univ. of Pennsylvania) lays emphasis upon Chaucer as an artist rather than as an historian or illustrator of an epoch. In "Chaucer's Art in Relation to His Audience" (*Univ. of Calif. Pub. in English*), Bertrand H. Bronson considers the effect on Chaucer's poetry of the circumstance that it was to be heard by an audience. Circumstantial evidence of a convincing sort in Ramona Bressie's "Was Chaucer at the Siege of Paris?" (*JEGP*) adds an interesting detail to Chaucer's biography. Thomas A. Kirby's *Chaucer's 'Troilus'* (Univ. of Louisiana) is a study of courtly love. Of special interest are the following articles in the volume of *Essays . . . in Honor of Carleton Brown:* Roger S. Loomis's "Was Chaucer a Laodicean?", which questions the usual view that Chaucer was unconcerned with the issues of the day; William W. Lawrence's "The Tale of Melibeus", which is a sympathetic interpretation and a study in changing taste; Laura H. Loomis's 'Chaucer and the Auchinleck MS", which presents parallels between "Thopas" and "Guy of Warwick"; and Haldeen Braddy's "Three Chaucer Notes", which refers to symbolic colors, Ceys and Alcione, and Sir Guichard d'Angle, a Poitevine friend.

In "The Canon's Yeoman's 'Silver Citrinacioun' " (*MP*) Edgar H. Duncan illustrates the extent and exactness of Chaucer's knowledge of alchemy. Thomas A. Kirby's "The French of Chaucer's Prioress" (*Studies for William A. Read*) opposes the usual view that Chaucer's portrait of the Prioress is satirical. Among the many studies of Chaucer's sources are: "A Possible Provencal Source for Chaucer's *Hous of Fame,* 300-310" by Robert M. Estrich (*MLN*); "Chaucer and the Liturgy" by Mary V. Rosenfeld (*ibid.*); "Analogues to Chaucer's *Manciple's Tale* in the *Ovide Moralisé;* and Machaut's *Voir-dit"* by Gardiner Stillwell (*PQ*).

SIXTEENTH CENTURY LITERATURE

Early Tudor.—Among studies of early Tudor literature are to be noted Albert Hyma's "The Continental Origins of English Humanism" (*HLQ*) and Jesse W. Harris's *John Bale: A Study in the Minor Literature of the Reformation* (Univ. of Illinois). The "Versions of Lindsay's *Satire of the Three Estates"* have been studied by Raymond A. Hanck (*PMLA*), and *The Defense of Good Women, by Sir Thomas Elyot* has been edited by Edwin T. Howard. W. Gordon Zeeveld describes "A Tudor Defense of Richard III" (*PMLA*), and the same author has discussed the education and literary career of "Richard Morison, Official Apologist for Henry VIII" (*ibid.*).

Elizabethan.—Madeleine Doran has written most interestingly "On Elizabethan Credulity, with Some Questions concerning the Use of the Marvelous in Literature" (*JHI*). Louis B. Wright discusses "The Significance of Religious Writings in the English Renaissance" (*ibid.*) and furnishes an account of "William Perkins: Elizabethan Apostle of Practical Divinity" (*HLQ*). *The Elizabethan Sermon: A Survey and a Bibliography* by Alan F. Herr, is a University of Pennsylvania dissertation. Special topics are considered in D. T. Starnes's "Literary Features of Renaissance Dictionaries" (*SP*), Celeste T. Wright's "The Amazons in

Elizabethan Literature" (ibid.), and Wilson O. Clough's "Fair-texted Lamentable Verse" (*Colorado College Publ.*), the latter being an essay on Elizabethan funeral verse. Also of interest for its literary associations is Morrison C. Boyd's *Elizabethan Music and Musical Criticism* (Univ. of Pennsylvania).

Spenser.—The poetry of Spenser was the subject of several interesting studies during the year. Waldo F. McNeir considered the topic of "Canto Unity in the *Faerie Queene*" (*PQ*) and Herbert D. Yard made a study of *Rhetoric in Spenser's Poetry* (Pa. State Coll.). "Spenser and Some Pictorial Conventions, with Particular Reference to Illuminated Manuscripts" (*SP*) by Rosemund Tuve, and "E. K's Reference to Painting: Some Seventeenth Century Adaptations" (*ELH*) by Frederick Hard deal with specialized topics. As usual, the interpretation of the allegory of the *Faerie Queene* is the subject of numerous articles. Passages in Book V are examined by Burton Milligan in "Spenser's Malengin and the Rogue-book Hooker" (*PQ*), Josephine W. Bennett in "The Allegory of Sir Artegall in *F.Q.* V. XI-XII", and Herbert B. Nelson in "Amidas v. Bracidas" (*MLQ*). "The Psychology of Spenser's Anamnestes" (*ibid.*) is a study by Bain T. Stewart of the function of memory's helper in the Castle of Alma. Dorothy F. Atkinson's "Busirane's Castle and Artidon's Cave" (*ibid.*) is concerned with sources.

Raleigh, Sidney, and Others.—Among articles dealing with Spenser's friends we may note "Abraham Fraunce and Edmund Spenser" (*ELH*) by Katherine Toller, "Gabriel Harvey and the Modern Languages" (*HLQ*) by Caroline B. Bourland, and "The Influence of Plato on Sir Philip Sidney's *Defense of Poesy*" (*MLQ*) by Irene Samuel. In two interesting articles, "Sir Walter Ralegh on Natural Philosophy" (*MLQ*) and "*The History of the World* and Ralegh's Skepticism" (*HLQ*), Ernest A. Strathman considers Raleigh's writings with reference to the contemporary charges of atheism brought against him. Among other studies of the nondramatic literature of this period are the following:—Townsend Rich's *Harington and Ariosto: A Study in Elizabethan Verse Translation* (Yale), Kathryn A. McEuen's *Classical Influence upon the Tribe of Ben,* R. W. Short's "Ben Jonson in Drayton's Poems" (*RES*), Edward M. Hinton's "Rych's [Barnabe Rich] *Anathomy of Ireland,* with an Account of the Author" (*PMLA*), and Fitzgerald Flournoy's "William Breton, Nicholas Breton, and George Gascoigne" (*RES*), the last-mentioned being concerned with biographical details. In "A New Song by Robert Jones" (*MLQ*), Joseph Q. Adams supplies an hitherto unknown musical setting for one of the poems in the *Poetical Rhapsody.*

The Drama.—As usual, however, the bulk of Elizabethan scholarship is concerned with the drama and with Shakespeare. Fredson T. Bower has traced the development of *Elizabethan Revenge Tragedy, 1587-1642* (Princeton) and Hardin Craig has written "The Shackling of Accidents: A Study of Elizabethan Tragedy" (*PQ*). Henry W. Wells's *A Chronological List of Extant Plays Produced in or about London, 1581-1642* and George F. Reynold's *The Staging of Elizabethan Plays at the Red Bull Theatre, 1605-1625* are both concerned with stage history, as is Alfred Harbage's *Annals of English Drama,* cited above. For individual dramatists, Samuel A. Tannenbaum has prepared *John Lyly: a Concise Bibliography* and *Thomas Lodge: a Concise Bibliography.* Robert A. Law's "A *Looking Glasse* and the Scriptures" (*Univ. of Texas . . . Studies in English*) finds the immediate source of the play in the Bishops' Bible.

In "The Authorship of *Gammer Gurton's Needle*" (*PQ*), Charles W. Roberts argues that "Mr. S." is Sebastian Westcote, master of the Children of Paul's. Studies of Marlowe include Marion B. Smith's *Marlowe's Imagery and the Marlowe Canon*

(Univ. of Pennsylvania), and Paul H. Kocher's "The Witchcraft Basis in Marlowe's *Faustus*" (*MP*) and "Marlowe's Atheist Lecture" (*JEGP*). With reference to Peele, Robert H. Wilson has discussed "Reed and Warton on *The Old Wives' Tale* (*PMLA*). Dekker's satirical attacks upon Puritanism are the subject of "Puritanism in the Plays and Pamphlets of Thomas Dekker" by Mary G. Adkins (*Univ. of Texas . . . Studies in English*). Charles F. Wheeler has investigated *Classical Mythology in the Plays, Masques, and Poems of Ben Jonson* (Princeton), while Richard H. Perkinson has written on "*Volpone* and the Reputation of Venetian Justice" (*MLR*). In "The High Design of *A King and No King*" (*MP*), Arthur Mizener interprets the plan of Beaumont and Fletcher's play as a pattern of responses in the mind of the audience. Mark Eccles has edited for the first time "Francis Beaumont's *Grammar Lecture*" (*RES*) from Sloane MS. 1709. S. Blaine Ewing's *Burtonian Melancholy in the Plays of John Ford* is one of Princeton University's *Studies in English.*

SHAKESPEARE

Consideration of Shakespeare studies must be highly selective. Of more extended works, the most important are Hazelton Spencer's *The Art and Life of William Shakespeare* and Elmer E. Stoll's *Shakespeare and Other Masters* (Harvard). C. F. Tucker Brooke's "Shakespeare Remembers His Youth in Stratford" (*Essays . . . in Honor of Carleton Brown*) and Rupert Taylor's "John Shakespeare, Corviser, of Stratford-on-Avon and the Balsall Shakespeares" (*PMLA*) are concerned with matters of biographical interest, as is John E. Uhler's "Shakespeare's Melancholy" (*Studies for William A. Read*). Prof. George L. Kittredge edited *King Henry IV, Part I* and *The Tragedy of King Lear;* Matthias A. Shaaber edited *King Henry IV, Part II* for the New Variorum Series. The subject of *The State in Shakespeare's Greek and Roman Plays* (Columbia) has been investigated by James E. Emerson. "Shakespeare's Gulls" (*SAB*) by J. Stewart Schell, "William Shakespeare, Botanist" (*ibid.*) by Phyllis Cook, and "Shakespeare and Music" (*ibid.*) by Mario Castelnuovo-Tedesco, reflect the increasing interest in the background of Shakespeare's imagery, as does also Paul Fatout's "Roan Barbary" (*ibid.*), which is concerned with Shakespeare's allusions to horses.

Many specialized studies of individual plays have appeared. Sarah Dodson, in "The Northumberland of Shakespeare and Holinshed" (*Univ. of Texas . . . Studies in English*), investigated Shakespeare's modification of Holinshed's conception of Northumberland. In "A Note on 2 Henry IV" (*SAB*) Russell K. Alspach calls attention to a classical allusion in the play. Margaret Ash has made a study of "Anglo-French Relations in King John" (*Études Anglaises*). "Shakespeare's Map for *The Comedy of Errors*" (*JEGP*), by George B. Parks, is an explanation of the movements in the play by means of the atlas of Ortelius. Daniel C. Boughner's "Don Armado and the *Commedia dell' Arte*" (*SP*) traces the literary lineage of the boastful soldier. In "Spenser and *Much Ado about Nothing*" (*SP*), Alwin Thaler argues for the importance of the story of Phedon and Claribell among Shakespeare's sources. Other articles of interest are Raymond A. Houk's "The Integrity of *The Taming of the Shrew*" (*JEGP*) and Donald C. Miller's "Iago and the Problem of Time" (*English Studies*). John W. Draper has published "The Psychology of Shylock" (*Bull. Hist. Med.*), "The Psychology of Shakespeare's Timon" (*MLR*), and "The Old Age of King Lear" (*JEGP*). Samuel A. Tannenbaum's *Shakespeare's Macbeth: A Concise Bibliography* and *Shakespeare's Sonnets: A Concise Bibliography* are usful contributions. One of the problems of the sonnets is the topic of "Light on the Dark Lady" (*PMLA*) by T. W. Baldwin and Pauline K. Angell.

SEVENTEENTH CENTURY

General.—The literature of the seventeenth century is being investigated with increasing thoroughness by scholars. Robert L. Sharp's *From Donne to Dryden* (Univ. of N. Carolina) is a study of the revolt against metaphysical poetry. *Some Seventeenth-Century Worthies in a Twentieth-Century Mirror* (*ibid.*), by R. Balfour Daniels considers such personages as Walton, Crashaw, Traherne, Carew, Pepys, Marvell, and others. Marjorie Nicholson, in "Cosmic Voyages" (*ELH*), treats of imaginary journeys to the moon. Z. S. Fink has written on "Venice and English Political Thought in the Seventeenth Century" (*MP*). Students of Puritanism will welcome G. F. Sensabaugh's "Platonic Love and the Puritan Rebellion" (*SP*) and W. K. Jordan's "Sectarian Thought and Its Relation to the Development of Religious Toleration, 1640-1660" (*HLQ*); the latter is a series of three articles dealing respectively with the mystics and enthusiasts, the individualists, and the socinians.

Donne and Others.—Of Jacobean and Caroline poets John Donne continues to be the most frequent subject of investigation. The following studies are of especial interest: R. E. Bennett's "Donne's Letters from the Continent, 1611-12" (*PQ*); George Williams's "Textual Difficulties in the Interpretation of Donne's Poetry" (*MP*), in which the importance of the 1633 edition is emphasized; and Marjorie Nicholson's "Kepler, the *Somnium*, and John Donne" (*JHI*). In "Sir Thomas Browne and the Quincunx" (*SP*), Jeremiah S. Finch calls attention to an important source for *The Garden of Cyrus;* and in "Early Drafts of The Garden of Cyrus" (*PMLA*) the same author examines a Bodleian MS. hitherto unexplored. The scientific and philosophic ideas of a scientist known to Ben Jonson are treated by Grant McColley in "Nicholas Hill and the *Philosophia Epicurea*" (*Annals of Science*). Lambert Ennis has written of "Anthony Nixon: Jacobean Plagiarist and Hack" (*HLQ*), while Jeremiah D. Ford has edited the second edition of Fanshawe's translation of *The Lusiad, by Luis de Camoens* (Harvard).

Restoration Drama.—An outstanding article in the field of Restoration drama is Alfred Harbage's "Elizabethan-Restoration Palimpsest" (*MLR*), where it is cogently argued that certain playwrights after 1660 secured the manuscripts of unprinted plays written before 1642, modernized them, and had them produced and published as their own. Hazelton Spencer's "Mr. Pepys Is Not Amused" (*ELH*) attempts to set Pepys' judgment of Shakespeare in a more favorable light. Leo Hughes's "Attitudes of Some Restoration Dramatists toward Farce" (*PQ*) should also be mentioned here. In "The Source of Shadwell's Character of Sir Formal Trifle in *The Virtuoso*" (*MLR*), G. Blakemore Evans demonstrates Shadwell's indebtedness to Davenant. James G. McManaway reprints, from the Folger copy, "The Lost Canto of *Gondibert*" (*MLQ*) and argues for its authenticity as the work of Davenant. A study of *The Aesthetic Theory of Thomas Hobbes* (Michigan), by Clarence D. Thorpe, considers Hobbes "with reference to his contribution to the psychological approach in English literary criticism." Reuben A. Brower is also concerned with criticism in "Dryden's Epic Manner and Virgil" (*PMLA*) which contends that, while Renaissance critical theory is strong in Dryden's essays, the influence of Virgil is great on his epic and heroic style.

MILTON

Students of Milton will find useful the two-volume *Index to the Columbia Edition of the Works of John Milton,* prepared by Frank A. Patterson and French R. Fogle. J. Milton French's "Mute Inglorious John Miltons" (*MLQ*) supplies biographical data for numerous John Miltons contemporaneous with the poet. The same author's "'That Late Villain Milton'" (*PMLA*) supplements Vol. XIII of the Columbia Milton (*Letters* *of State*) with the texts of several new letters and information on their publication. In "Critical Activity of the Poetic Mind: John Milton" (*PMLA*) John S. Diekhoff discusses Milton's revisions in the interest of vividness and poetic suggestiveness. Arthur Baker has investigated the topic of "Christian Liberty in Milton's Divorce Pamphlets" (*MLR*). Additional light is cast upon Milton's theological learning by Arnold Williams's "Milton and the Book of Enoch—An Alternative Hypothesis" (*Harvard Theol. Rev.*) and "Milton and the Renaissance Commentaries on Genesis" (*MP*). Lawrence Babb, in "The Background of *Il Penseroso*" (*SP*), distinguishes the two Renaissance conceptions of melancholy. The relation of *Comus* to the musical drama of Italy is discussed by Gretchen L. Finney in *"Comus, Dramma per Musica"* (*ibid.*). The function of "The Banquet Scene in *Paradise Regained*" (*PMLA*) is considered by Theodore H. Banks. Finally, may be noted F. R. B. Godolphin's "Notes on the Technique of Milton's Latin Elegies" (*MP*).

THE EIGHTEENTH CENTURY

General.—The interest of scholars in the literature of the eighteenth century is constantly increasing. John C. Mendenhall's *English Literature, 1650-1800* is a comprehensive anthology of prose, poetry, and drama. An introduction to the aesthetic ideals of the age is provided by Francis Gallaway's *Reason, Rule, and Revolt in English Classicism.* "Science and Criticism in the Neo-Classical Age of English Literature" (*JHI*), by Richard F. Jones, is a study of the influence of scientific thought. Separate literary types are treated in *The Art of Biography in Eighteenth Century England* by Donald A. Stauffer and *The Epistolary Novel in the Late Eighteenth Century* (Univ. of Oregon) by Frank G. Black.

Defoe has been the subject of a number of studies. Mention may be made of John R. Moore's "Defoe and the Rev. James Hart: A Chapter in High Finance" (*PQ*) which is concerned with Defoe's activities among the ministers of the Church of Scotland, the same writer's "Defoe's Political Propaganda in *The Dumb Philosopher*" (*HLQ*), and Charles O. Burch's "Defoe and the Edinburgh Society for the Reformation of Manners" (*RES*).

Pope, Swift, Gay.—Edward N. Hooker, in "Pope and Dennis" (*ELH*), finds that Dennis's attacks on Pope were provoked by previous acts of Pope and his friends. In "Pope's Letters and the Harleian Library" (*ibid.*), George Sherburne throws light on Pope's editorial methods. Frank S. Good's *Jonathan Swift, Giant in Chains* is a biographical study of the great satirist, while Denver E. Baughan's "Swift and Gentillet" (*SP*) is concerned with sources. In *John Gay, Favorite of the Wits* (Duke Univ.) William H. Irving has attempted to collect all the available facts concerning the author of *The Beggar's Opera.*

Johnson and Burke.—E. L. McAdams continues his previous study of Johnson's collaboration with "Dr. Johnson's Law Lectures for Chambers, II" (*RES*), and Ellen D. Leyburn, in examining "The Translations of the Mottoes and Quotations in the *Rambler*" (*ibid.*), throws light on the chronology of the early editions of the *Rambler* and on Johnson's literary habits. Donald C. Bryant's *Edmund Burke and his Literary Friends* is also of interest to Johnsonians. *Rousseau and Burke,* by Annie M. Osborn, is "a study of the idea of liberty in eighteenth century political thought." In "Burke's Theory Concerning Words, Images, and Emotion" (*PMLA*), Dixon Wecter finds the sources of Burke's theory in Locke and Berkeley.

Goldsmith and Fielding.—Another instance of plagiarism in Goldsmith is recorded in "Goldsmith and Jean Rousset de Missy" (*PQ*) by Arthur Friedman. "The Sentimentalism of Goldsmith's *Good-Natured Man*" is the subject of an essay by Robert B. Heilman (*Studies for William A.*

Read). Howard P. Vincent, in "The Childhood of Henry Fielding" (*RES*), throws new light on the father of the novelist, while Winfield H. Rogers, in "The Significance of Fielding's *Temple Beau*" (*PMLA*) interprets the play in the light of Addison's discussion of pedants.

Smollett and Sterne.—Another article by Vincent, "Tobias Smollett's Assault on Gordon and Groom" (*RES*) is based upon records of suits in Chancery and King's Bench. In "The Evolution of *A Sentimental Journey*" (*PQ*), Rufus Putney concludes that the book was "a hoax by which Sterne persuaded his contemporaries that the humor he wanted to write was the pathos they wished to read."

Sheridan and Others.—Alice Glasgow's *Sheridan of Drury Lane* is a biographical study. Mention must also be made of Thomas W. Herbert's *John Wesley as Editor and Author* (Princeton). In connection with eighteenth century romanticism, are the following: *The Rise of Romantic Hellenism in English Literature, 1732-1786,* by Bernard H. Stern; *Windows of the Morning: A Critical Study of William Blake's Poetical Sketches,* by Margaret R. Lowery; "The Dating of Lady Luxborough's Letters to William Shenstone" (*PQ*), by Duncan Mallam; and "Burns' Later Years: Some Candid Notes by his Friend John Syme" (*SP*), by Robert T. Fitzhugh.

NINETEENTH CENTURY

Coleridge.—In this period scholarly interest has been centered in the poets. *Coleridge the Talker* (Cornell) is a series of contemporary descriptions and comments edited by Richard W. Armour and Raymond F. Howes. Charles R. Sanders, in "Sir Leslie Stephen, Coleridge, and Two Coleridgeans" (*PMLA*), gathers together Stephen's various utterances on Coleridge. *Coleridge Fille,* by Earl L. Griggs, is a biography of the poet's daughter Sara.

The Wordsworths.—Alice P. Comparetti has prepared a critical edition of Wordsworth's *White Doe of Rylstone* (Cornell), while Bennett Weaver is the author of three articles on Wordsworth—"Wordsworth: The Aesthetic Intimation" (*PQ*), "Wordsworth: The Property of Fortitude" (*SP*), and "Wordsworth's *Prelude:* the Shaping Spirit" (*ibid.*). An important article by Joseph W. Beach, "Reason and Nature in Wordsworth" (*JHI*), examines the poet's use of the terms "reason" and "nature." In "Wordsworth's Desiccation" (*MLR*), Alan L. Strout considers the possible effect of Wordsworth's poverty upon his poetry. *The Poetry of Dorothy Wordsworth* has been edited by Hyman Eigerman (Columbia).

Keats and Shelley.—In "John Keats: When Was He Born and When Did He Die?" (*PMLA*), James H. Pershing offers the dates Oct. 31, 1795 and Feb. 24, 1821. Lawrence J. Zillman has discussed *John Keats and the Sonnet Tradition.* Frank B. Evans his written of "Shelley, Godwin, Hume, and the Doctrine of Necessity" (*SP*), and Julia Power has considered *Shelley in America in the Nineteenth Century: His Relation to American Critical Thought and His Influence* (Univ. of Nebraska).

Victorian Poets.—Before turning to studies of the Victorian poets, Charles F. Harrold's "Recent Trends in Victorian Studies: 1932-1939," a comprehensive bibliographical essay with much critical evaluation, should be noted. Among many studies of Browning are "Browning's Friendships and Fame before Marriage" (*PMLA*) by Maurice B. Cramer: "A Parleying with Aristophanes" (*ibid.*) by Donald Smalley, which presents *Aristophanes' Apology* as revealing Browning's views of poetry; "Browning's Casuists" (*SP*) by William O. Raymond; and "Is *Pippa Passes* a Dramatic Failure?" (ibid.) by J. M. Ariail. Chauncey B. Tinker and H. F. Lowry have supplied a valuable commentary on *The Poetry of Matthew Arnold,* and Lloyd W. Eshleman, in *A Victorian Rebel,* has written a biographical account of William Morris. *Dante Gabriel Rossetti's Letters to Fanny*

Cornforth have been edited by Paul F. Baum.

Essayists.—John C. Metcalf's *De Quincey: A Portrait* (Harvard) and Myron F. Brightfield's *John Wilson Croker* are to be noted. Charles F. Harrold discusses the relationship of "Newman and the Alexandrian Platonists" (*MP*). *Thomas Carlyle: Journey to Germany, Autumn 1858* is an edition by Richard A. Brooks, while Leroy E. Kimball gives an account of the relations of "Thomas Carlyle and Charles Butler of Wall Street" (*Essays . . . in Honor of Carleton Brown*). Ruth C. Child has made a study of *The Aesthetic of Walter Pater.*

Novelists.—The year produced a number of interesting studies. Christabel F. Fiske's *Epic Suggestion in the Imagery of the Waverley Novels* (Yale) is a valuable contribution. W. Powell has printed "Three Unpublished Letters of Scott to Dibdin" (*HLQ*) which throw new light on the contemporary popularity of Scott and add to our knowledge of Scott the antiquarian and collector of books. Ellis N. Gummer's *Dickens' Works in Germany, 1837-1937* is a critical survey of the popularity of Dickens's books in Germany. In "Dickens and the Evolution of Caricature" (*PMLA*) Earle R. Davis traces the ejaculatory manner of Mr. Jingle from Smollett through a succession of plays, and finds the character influential in the creation of Dickens's own distinctive type of caricature. Ernest Boll's "Charles Dickens in *Oliver Twist*" (*Psychoanalytic Rev.*) emphasizes especially the reflection in Dickens's novels of Mary Hogarth and her death. Gordon S. Haight's *George Eliot and John Chapman* (Yale) is based upon letters and documents now in the Yale Library.

CONTEMPORARY LITERATURE

General studies of contemporary literature include Dorothy M. Mackenzie's *Some Studies in the Modern Novel,* Amos N. Niven's *The Spiritual Aspects of the New Poetry,* and Conrad Aiken's "Back to Poetry" (*Atlantic Monthly*). Since 1940 is the centenary of Hardy's birth, it is not surprising that many appreciative studies of Hardy should have appeared. Of these by far the most important is Carl J. Weber's *Hardy of Wessex: His Life and Literary Career.* Frances Winwar has written of *Oscar Wilde and the Yellow Nineties.* Arthur B. Sutherland's *Maurice Hewlett: Historical Romancer* is a University of Pennsylvania dissertation. Julian Park has edited *Some Unpublished Letters of Bernard Shaw* (Univ. of Buffalo), while Maurice D. Colbourne has made a study of *The Real Bernard Shaw* gleaned from Shaw's own writings.

Edward B. Shanks's *Rudyard Kipling; A Study in Literature and Political Ideas* is concerned with Kipling's verse and prose. The recently edited *Letters on Poetry from W. B. Yeats to Dorothy Wellesley* constitute a continuous correspondence reflecting the poet's views. Agnes Repplier has written of the poetry of "The Brothers Housman" (*Atlantic Monthly*), and Russell K. Alspach has supplied a critical evaluation of "The Poetry of Katharine Tynan Hinkson" (*Ireland American Rev.*). Herbert S. Gorman's *James Joyce* is a definitive biography based upon personal association and Joyce's private papers. Agnes I. Smith has written an appreciative criticism of "E. V. Lucas" (*Sewanee Rev.*). Theodore Spencer's "Aldous Huxley: The Latest Phase" (*Atlantic Monthly*) refers particularly to *After Many a Summer.* Finally, are two studies of T. S. Eliot, *The Achievement of T. S. Eliot: An Essay on the Nature of Poetry* by F. O. Matthiessen and "T. S. Eliot and the Laodiceans" (*American Scholar*) by Babette Deutsch.

GERMANIC LANGUAGES AND LITERATURES

BY F. W. KAUFMANN

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GENERAL*

Reports from all parts of the country seem to indicate that the study of the German language has suffered less from the outbreak of the war in Europe than from violations of humanitarian principles during the preceding years. However, anticipating a later decline, textbook publishers have assumed an attitude of cautious waiting. In research, some reserve may be noticed with regard to contemporary authors. The difficulty of communicating with the old countries and the consequent shrinking of the book market will make the publishing of books in this field increasingly difficult and place a considerable financial burden upon the scholarly active members of the profession.

LANGUAGE PEDAGOGY

Although not strictly within the scope of this report, P. Hagboldt's book *The Teaching of German* (D. C. Heath, Boston) deserves to be mentioned here. He examines the pedagogical problems confronting the teacher of German on the basis of modern psychology and utilizes the whole methodological literature in the field of modern language teaching.

HISTORY AND LINGUISTICS

E. A. Philippson's "Prähistorische Rassenkunde und Germanische Religionsgeschichte" (*MfdU*) is a survey of the present status of ethnological and anthropological knowledge about the Germanic peoples. Rather ironically, the combined result of recent research in all prehistoric fields seems to indicate that the Germanic tribes are a mixture of at least two main races, and that their religion combines elements originating in Old Europe, Asia Minor, and Central Asia.

In an article "The Long Forms of ōn-Verbs in Old Saxon" (*Lang.*), E. H. Sehrt maintains that the long forms of the second weak conjugation are not of Indo-European origin, but were formed by adding the subjunctive endings of the first class to the stem of the second class, in order to make a sharper distinction between indicative and subjunctive.

In a series of three articles, "Im Spiegel der Sprache" (*MfdU*), H. Sperber shows the cultural background and the semantic development of such expressions as *imstande sein, was ist los, Gespenst* and *Verhängnis, Aufschlusz geben.*

J. A. Walz examines all possible Germanic, Slavic, and Hungarian derivations of "The Interjection Hurrah" (*JEGP*) to arrive at the conclusion that it was first used as an English sailor's and soldier's shout and as such penetrated into the vocabulary of central and northern Europe during the eighteenth century.

A. Senn's "Ostpreuszens Vorgeschichte sprachlich beleuchtet" (*GR*) proves the possibility of direct prehistoric Gothic-Finnish contact in East Prussia and assimilation of the Gothic masters by the Finnish population.

EARLY LITERATURE

In "Ođinn and the Norse Jǫrmunrekkr-Legend" (*PMLA*), C. Brady gathers evidence to prove a close association between Ođinn and Jǫrmunrekkr for the ninth century Hamđismál, and concludes that stanza 22 must be interpreted as Ođinn's appearance in the Gothic hall before the attack of the brothers.

M. R. Fuehrer's *A Study of the*

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* Abbreviations: *GR = Germanic Review; JEGP = Journal of English and Germanic Philology; Lang. = Language; MfdU = Monatshefte für deutschen Unterricht; PMLA = Publications of the Modern Language Association of America.*

Relation of the Dutch Lancelot and the Flemish Perchevael Fragments to the Manuscript of Chrétien's Conte del Graal (Catholic University Studies, Washington) comes to the conclusion that the lost verse original is closest to the Flemish-Dutch versions, and that Wolfram shows similarity to these versions where he differs from Chrétien. V. Gingerick edited "The Ludus of Conrad Celtes" (*GR*) with introductory remarks on the author, the language and the metre, the interpretation and the production of the play.

EIGHTEENTH CENTURY

A. B. Faust edited John Quincy Adams' translation of Wieland's *Oberon* (Crofts, N.Y.). T. Geissendoerfer edited *Briefe an August Hermann Francke* (Urbana, Ill.) with biographical notes. In "Der Rousseaugehalt in Klingers Drama Das Leidende Weib" (*JEGP*), H. M. Wolff compares Klinger's drama with Rousseau's *Nouvelle Héloise* and finds that both the French novel and the German drama begin with the description of a passionate love relation, but end with a moral condemnation of passion. Wolff's conclusion is that only the form of Klinger's drama can be considered as irrational, but that its content makes it a drama of enlightened rationalism. The same author published a study on "Fatalism in Klinger's Zwillinge" (*GR*). He sees in this drama of the Storm and Stress period a reflection of Holbach's materialistic determinism as exposed in the Système de la Nature. The simple fact that Guelfo was born a few seconds later than his brother determines his whole reaction to life and finally drives him to fratricide. But in spite of the fatalistic character of the play, it is a revolutionary protest against the unreasonable structure of society.

C. L. Hornaday's *Nature in the German Novel of the Late Eighteenth Century* (Columbia University, New York) investigates the reaction of German novelists between 1770 and 1800 to Rousseau's theory that man might find happiness in nature. He examines the various forms of "nature attitudes" such as materialistic, idealistic, sentimental, mystic, and religious attitudes.

GOETHE AND SCHILLER

A. R. Hohlfeld, M. Joos, and W. F. Twadell compiled a *Wortindex zu Goethes Faust* (Univ. of Wisconsin) in which all words occurring in the two parts of the drama are listed with variants and the number of the line in which they are found. In an article, "Zur Textgestaltung der neueren Faustausgaben" (*MfdU*), Mr. Hohlfeld discusses the difficulties in compiling this index and the principles which caused the variations in modern Faust editions.

H. Bergenthal's article "Schillers Briefe 'Über die ästhetische Erziehung des Menschen' und Goethe's Faust" (*MfdU*) reveals a close relation between Schiller's conception of man and Goethe's Faust plan of the year 1797. The similarity is especially remarkable for such ideas as the relation between body and mind, and the function of the esthetic in the development from the sensual to the moral stage.

F. W. Kaufmann's article on "Schiller's Geschichtsphilosophie auf Grund seiner historischen Schriften" (*MfdU*) shows the relation between causal and teleological interpretation in Schiller's conception of the historical process. Schiller was convinced of the self-destruction of all selfish and despotic tendencies in history. In spite of all reverses and many futile attempts at finding an appropriate form for human society, the mind shows in general a progressive development towards political and moral autonomy. This progress, however, is also a challenge to man to contribute his utmost to the realization of the historical ideal—humanity. Schiller's interpretation comes, at times, very close to Hegel's conception of history.

NINETEENTH CENTURY

The same author introduces his book, *German Dramatists of the*

Nineteenth Century (Lymanhouse, Los Angeles), with a summary of his views on the functional interpretation of literature and a survey of the main ideas of the eighteenth and nineteenth centuries which influenced the German drama of the nineteenth century. He then analyzes the dramatic works of Kleist, Grillparzer, Grabbe, Büchner, Hebbel, Otto Ludwig, Richard Wagner, and Ibsen as to their philosophical problems and to their relation to the philosophy of the time. The work of each dramatist is considered as an integral whole; every individual drama is assigned a definite place in the development of the author and interpreted as a step in the progressive solution of his philosophy of life.

F. Bruns and W. Silz renew the discussion about Kleist's drama *Prinz Friedrich von Homburg* (*MfdU*). Bruns defends the authoritarian conception of the Kurfürst whom he regards as master of the situation from the very beginning of the play, while Silz allows for a development in Kurfürst's as well as in Prinz Friedrich's character.

In an article on "Bilder und Gleichnisse in Keller's Prosawerken" (*PMLA*), O. S. Fleissner studies Keller's use of images and similes and their function.

P. M. Kramer's *The Cyclical Method of Composition in Gottfried Keller's Sinngedicht* (Columbia University) shows the interrelation between the central idea presented in the "frame" of the poem and the themes revolving around it, leading to clarification and intensification.

U. E. Fehlau follows the development of "Symbolism in Adalbert Stifter's Works (*JEGP*) from the crude weather symbolism of his early stories through a highly polished form of nature symbolism to the climax, at which the behavior of man himself may be regarded as a symbol of the eternal operation of "das Sittengesetz." O. Heller and T. H. Leon compiled a *Charles Sealsfield Bibliography* (Washington University Studies, St. Louis) classifying Karl Postl-Sealsfield's writings and the literature relating to his works and life.

In a book *Maske und Gesicht in den Werken Conrad Ferdinand Meyers* (Johns Hopkins), C. K. Bang gives a very detailed analysis of the various devices by which C. F. Meyer avoids the immediate expression of his subjectivity in his works and letters. The characters of his stories hide themselves from one another and from the reader behind the masks of villains, rogues, courtiers; they conceal the truth, their fears, their creed, their piety, their good as well as their bad intentions. This tendency also influences the poetic symbols and even the cyclical arrangement of Meyer's poems.

A. Burkhard and H. H. Stearns' "Conrad Ferdinand Meyer Reveals Himself" (*GR*) submit Meyer's story to a detailed examination as to style, characterization, plot, and in its symbolic function in conveying the author's conception of life even behind a façade of heroism. F. Wood discusses "Hugo von Hofmannsthal's Æsthetics" (*PMLA*) in their polar aspect of relativism, materialism, and senseism on the one hand, and the ethico-religious demand on the other.

CONTEMPORARY LITERATURE

F. W. J. Heuser analyzes "Gerhart Hauptmann's Die Tochter der Kathedrale" (*GR*) and compares this latest Hauptmann play with its source, one of Marie de France's lays. In a study on "Women in the Works of Thomas Mann" (*MfdU*), E. H. Schneck comes to the conclusion that Mann's women characters are rather uniformly of a mediocre, sensually attractive type, but lacking the greatness of self-sacrifice, renunciation, or intellectual independence. The best of them have enough knowledge of literature, art, and music to make themselves socially graceful. "They exhibit no growth as to interests and achievements—only a greater elaboration on their physical features and degeneration emotionally."

In his "Study of the Literary Theory of Carossa, Grimm and Kolbenheyer" (*MfdU*), J. R. Frey finds that these modern writers unanimously stress the functional, not the aesthetic aspect of literature. They see their own function in "bringing out and enhancing in every individual the best innate values of the German character" and thereby assuring "a reasonable degree of benefit and enrichment to mankind."

In his study *Germany's Military Heroes of the Napoleonic Era in Her Post-War Historical Drama* (Pittsburgh Printing Co), H. E. Stearns examines German national self-consciousness from 1919 to 1935 as expressed in dramas at all levels, ranging from Volkskunst to genuine art. Of the 107 dramas concerned with the Napoleonic period, only four can be classified as genuine art. The favorite heroes are Schill, Yorck, Gneisenau, and Louis Ferdinand. Among the outstanding themes are faith in Germany's immortality, adoration of Queen Louise, criticism of the Hohenzollern, duty *versus* inclination.

In an article, "Enter Author: Erlebte Rede in the Work of Karl Heinrich Waggerl" (*MfdU*), M. F. Lawson refutes the conception that in regional novel technique the author is completely absent in the telling of the story. Waggerl makes ample use of *erlebte rede* in his novels. By introducing himself in this inobtrusive way, he expresses his civilization ennui and his longing for the simple life of the peasant characters he describes.

GERMAN LITERATURE ABROAD

Auslandsdeutsche literature is represented by an article on the Transylvanian "Heinrich Zillich" (*MfdU*), in which W. J. Mueller outlines the specific problems confronting Germans in foreign countries and their reflection in Zillich's works. Another field for study is opened by C. L. Hornaday's suggestive article on "Some German Contributions to American Hymnology" (*Mfdu*). H. H. Reichard's *Pennsylvania German Verse* (Norristown, Pa.) is an anthology of representative selections in "Pennsylvania Dutch." Amassed from the works of more than 90 writers, this volume presents a "collection" rather than a "selection" of Pennsylvania German dialect verse which is designed to give a general view of the life and thinking of the Pennsylvania Germans. An appendix contains brief biographies of many writers not included in Reichard's earlier study on writers of this language group.

ROMANCE LANGUAGES AND LITERATURES

BY ERNEST R. MOORE

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GENERAL

American scholarship in the Romance field quickened during 1940, perhaps as a reaction both against the abhorrent world political situation which has terminated scholarship abroad and against the growth of a sceptical attitude in the family of scholars as to the worth of their activities. Some critics have deplored the practice of encouraging students to re-explore fields of study already adequately surveyed by competent scholars. Others have explained the preponderance of purely historical research over appreciative studies by declaring that the former is the ready product of diligence whereas the latter requires talent and the exercise of judgment.

At the December meeting of the Modern Language Association such criticisms were openly faced, and Douglas Bush, among others, gave a spirited rebuttal. A survey of the writings of 1940 reveals many—whatever the motives leading to their composition and publication—which contribute little to the generally accepted object of romance scholarship: a broader conception and deeper understanding of the cultures built up by the romance language peoples.

The appearance of a new journal, *The Modern Language Quarterly* (Univ. of Washington), should be noted. During the year scholars properly contributed to a better understanding of Hispanic American languages and literatures.

BIBLIOGRAPHIES

A general bibliography of articles and books is published in the supplement number of the *PMLA*.[1] *The Year's Work in Modern Language Studies* (England), is more exhaustive and includes studies by American scholars. *Work in Progress* and *Research in Progress* (UNC) attempt to list the topics currently engaging the attention of scholars in England and America. Three standard annual bibliographies were continued: "Recent Literature of the Renaissance" (*SP*, 283) by several bibliographers, *Progress of Medieval and Renaissance Studies in the United States and Canada* (Colorado), and "Doctor's Degrees in Modern Foreign Languages" (*MLJ*, 58) by H. G. Doyle. S. De Ricci and W. J. Wilson completed their valuable *Census of Mediaeval and Renaissance Manuscripts in the United States* (Wilson). "A Selective Bibliography of Romanticism" (*PMLA*, 53) brief but good, including Italy, France, and Spain, was compiled. D. F. Bond and others published their lengthy "Anglo-French and Franco-American studies, 1939" (*RR*, 114).

A. D'Elia inaugurates a new series with his comprehensive *Bibliography of Italian Dialect Dictionaries* (UNC). J. E. Shaw continued his "Bibliography of Italian Studies in America" (*Ital*, 72 and 112).

Spanish American bibliography: J. J. Dossick published in his new *Mexicana Review* an exhaustive "Bibliography of Mexicana written in English during the year 1939" (7). P. P. Rogers compiled a useful research tool, an author list to *The Spanish Drama Collection in the Oberlin College Library* (Oberlin).

LINGUISTICS

General.—A major event was the publication of L. H. Gray's *Foundations of Language* (Macmillan, 1939) which pointed out some neglected fields in comparative linguistics. W. B. Smith published *De la toponymie bretonne, dictionnaire étymologique* (Linguistic Society), a good reference work. H. S. Eaton called attention to a slighted subject with her *Semantic Frequency List for English, French, German, and Spanish* (Chi.). J. D. M. Ford wrote "Some Principles of Linguistic Change in Romance" (*ML*, 3).

French linguistics attracted many scholars. R. Levy proffered "A proposal for Old French lexicography" (*ML*, 333). Leo Spitzer wrote an historical and psychological disquisition on *"Aujourd'hui et jour"* (*SP*, 565), a psychological interpretation of *"Ça fait distingué: elle fait 'espagnole'"* (*RR*, 44) and *"Le style 'circulaire'"* (*MLN*, 495), as well as *"A. Fr. escharevotee et 'ecorchié'"* (*MLN*, 447). B. A. Morrissette contends that the accepted etymology of "Scorsonère, 'black salsify'" (*PMLA*, 605) is mistaken. Other articles: A. G. Hatcher, "The Rise and Fall of *s'écrier* in French" (*MLN*, 323); E. C. Armstrong, "OFr. *chanfrien* and OFr-MFr *chanfrein*" (*MLN*, 134); R. Levy, "The Plural Usage in Judaeo-French" (*MLN*, 532); P. Delattre, *"Tendances de coupe syllabique en français"* (*PMLA*, 579). E. F. Haden and E. A. Joliat presented their thorough study on *"Le genre grammatical des substantifs en Franco-Canadien empruntés à l'anglais"* (*PMLA*, 839).

Spanish.—In Spanish linguistics little was accomplished. L. O. Wright found *"de"* "The Spanish word most frequently mispronounced in the United States" (*Hisp*, 49); D. L. Canfield attempted to determine "What Spanish Sounds Are Most Difficult for North Americans" (*Hisp*, 153).

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[1] Abbreviations of magazines: *BA*, *Books Abroad; FR*, *French Review; Hisp*, *Hispania; HR*, *Hispanic Review; Ital*, *Italica; MLJ*, *Modern Language Journal; MLN*, *Modern Language Notes; MLQ*, *Modern Language Quarterly; MP*, *Modern Philology; PMLA*, *Publications of the Modern Language Association of America; RHM*, *Revista Hispánica Moderna; RI*, *Revista Iberoamericana; RR*, *Romanic Review; Spec*, *Speculum; SP*, *Studies in Philology*. Presses: Calif., Univ. of Calif.; Chi., Univ. of Chicago; Harv., Harvard Univ., JHP, Johns Hopkins Univ., MLA, Pub. by the Modern Language Assn., UNC, Univ. of North Carolina; and others plainly indicated.

Italian.—L. Spitzer, "Ital. *rifutare*" (*Ital*, 148) and R. A. Hall, "Again the *'murmelvokal'* in Old Italian" (*Ital*, 123).

MEDIEVAL FRENCH

E. N. Stone translated *Three Old French Chronicles of the Crusades: The History of the Holy War, The history of Them That Took Constantinople, The Chronicle of Reims* (U. of Wash.). W. W. Comfort investigating "The Literary Rôle of the Saracens in the French Epic" (*PMLA*, 628) discovered that they "served chiefly as an objective to which the Christian heroes could devote their militant energies;" H. J. Green published a critical edition of *Anseys de Mes* (Paris, 1939); R. K. Bowman described *The connection of the 'Geste des Loherains' with other French Epics and Mediaeval Genres* (Author). "A monetary question in Gautier D'Aupais?" (*MLN*, 338) questioned E. Fenimore. V. F. Koenig answered Vigneras's article of the previous year in "Counter-notes on Jean Renart" (*MLN*, 8). A. D. Menut issued a critical edition of Nicole Oresme's *Le livre de Ethiques d'Aristotle* (Stechert). A fifteenth century manuscript, *"Proverbes en rimes"* (*RR*, 209) was published by G. Frank with ample notes. Two interesting articles on Villon appeared: *"Etude ahistorique d'un texte: 'ballade des dames du temps jadis'"* (*MLQ*, 7) by L. Spitzer, and "Villon, *Testament*, strophe CXXXVIII" (*PMLA*, 931) by A. H. Schutz. U. T. Holmes confirms the date generally accepted for *"Pathelin"* (*MLN*, 106).

FRENCH (1500-1800)

Sixteenth Century.—A poet (Morris Bishop) wrote warmly about *Ronsard, Prince of Poets* (Oxford), who also received the attention of R. V. Merrill, "Ronsard and the Burning Grove" (*MP*, 337), an interpretation, and J. Hulton, "Three notes on French Authors: Desportes, Guéroult, Ronsard" (*MLN*, 579). M. Françon wrote on "Marot au châtelet" (*MLN*, 1). J. Guiton interpreted "Le mythe des paroles gelées" (*RR*, 3) from Rabelais, and G. O. Seiver answered negatively the question, "Did Halherbe Correct Montchrestien?" (*PMLA*, 968). U. T. Holmes, J. C. Lyons, and R. W. Linker completed the valuable edition of *The Works of Du Bartas* (UNC).

Seventeenth Century.—The principal contribution to seventeenth century scholarship is H. C. Lancaster's definitive *History of French Dramatic Literature in the Seventeenth Century, Part IV: The Period of Racine* (JHP, 2 vols.). Racine was the subject of two other studies, a slight discussion by R. Taupin, "Racine et Mallarmé" (*FR*, 16), and a study by M. P. Haley which proved that "Peripetia and Recognition in Racine" (*PMLA*, 426) were highly conscious artistic procedures used to excite tragic pity. Corneille enthusiasts will want to read J. F. Privitera's "The Date of Mme. Deshoulières's Parody of *Le Cid*" (*MLN*, 541). To this period belong: H. C. Lancaster asked "Is *La coupe enchantée* by La Fontaine or Champmeslé? (*MLN*, 105); E. M. Rodrigue contributed an interpretive study in *"Le verges des images de Saint François de Sales"* (*RR*, 253). W. L. Wiley offered evidence to show that in "Jean Chapelain, the Oracle of Aristotle" (*SP*, 51) "the terminology of French classicism was already present."

Eighteenth Century.—G. B. Watts clarified the date of issuance of "Louis Racine's *De la grace*" (*PMLA*, 777). J. A. Downs declared that "The poetic theories of Jacques Delille" (*SP*, 524) prove him to be "among the first poets of the eighteenth century to recognize the inferiority of French lyric poetry." The "Dates of Diderot's Birth and Death" (*MLN*, 31) were examined by G R. Havens. Letters have come to shed new light on old literary questions in H. Brown's "Madame Geoffrin and Martin Folkes: Six New Letters" (*MLQ,* 215), and I. Wade and N. L. Torrey's "Voltaire and Polier de Bottens" (*RR,* 147). G. Bonno discussed *"Un texte inédit de l'Abbé Leblanc sur les Lettres Philosophiques de Voltaire"* (*MLN,* 503). C. H. Prator and F. W. Gravit criticized "The editions of Freron's *Lettres sur quelques écrits de ce temps"* (*MLQ,* 323). H. A. Grubbs traced in an interesting article "The Vogue of Jean-Baptiste Rousseau" (*PMLA,* 139) and concluded that it originally sprang from the belief that he was the awaited great lyric poet of France. E. V. Mühl wrote on *"Rousseau et les reformateurs de théâtre"* (*MLN,* 161). Related to this is C. D. Brenner's "Little Known Sources for the Study of the Eighteenth Century French Theatre" (*RR,* 254).

FRENCH (1800-1940)

The relation of "Marivaux and Musset" (*RR,* 259), according to E. C. Frederick, is that the latter "renewed and transformed the classical play of Marivaux." W. T. Bandy published "A Self Estimate of Baudelaire" (*MLN,* 297). Studies in French Romanticism flourished. G. R. Havens provided a comprehensive view in "Romanticism: France" (*PMLA,* 10), A. J. George an interpretation of *Lamartine and Romantic unanism* (Col.), R. C. Glenn plotted *"La chronologie des 'Orientales' de Victor Hugo"* (*PMLA,* 1180), and C. W. Bird indicated "Three sources of Vigny's *Journal"* (*MLN,* 583). G. B. Fitch wrote a difficult study of "The comic sense of Flaubert in the light of Berson's *Le rire"* (*PMLA,* 511). The Dumas plays occasioned two papers: "Violence as a Technique in the Dramas and Dramatizations of Dumas Père" (*RR,* 265), and "Contemporary Criticism of the Plays of Dumas *fils,* 1852-1869" (*MP,* 293).

A study in chronology is A. Delattre's *"Les premières relations de Sainte-Beuve avec Chateaubriand et l'Abbaye-aux-Bois"* (*RR,* 29). Technique in Balzac occupied two scholars. R. P. Bowen endeavored to ascertain the extent to which Balzac's theories of composition and the principle characters as seen in the *Human Comedy* were already present in his early novels (*PMLA,* 815). J. Wenger, upon examining "Speed as a technique in the novels of Balzac" (*PMLA,* 241) discovered that with this device he was able "to give an almost inimitable tempo and movement to certain scenes" in his stories and novels. A further Balzac item was the variant text edition published by B. Raser of *Le message* (Harv.) Other French novelists were studied: B. C. Carter wrote "Alphonse Daudet: in memorium, 1840-1940" (*FR,* 21) and A. E. Singer published "Flaubert's *Une nuit de Don Juan"* (*MLN,* 516), while R. J. Niess published *Emile Zola, Letters to J. Van Santen Kolff* (Wash. U. Studies) and "The letters of Emile Zola to Van Santen Kolff" (*RR,* 35). "Notes on historical references in Anatole France's *L'Orme du mail"* (*MP,* 73) occupied D. L. Hamilton. D. W. Alden's book, *Marcel Proust and his French Critics* (Lymanhouse), surveyed the subject; F. Vial's *"Le symbolisme bersonien des temps dans l'oeuvre de Proust"* (*PMLA,* 1191) specifically concluded from this difficult study that *"Marcel Proust a transporté le bersonisme en littérature."* Modern French poetry: R. Etiemble, *"Sur une 'source' de Rimbaud"* (*MP,* 371).

ITALIAN

Dante and Boccaccio.—Dante items as usual outweigh the rest. H. D. Austin wrote the excellent "Notes to the *Divine Comedy,"* supplementing existing commentaries, as well as "Some Thoughts About Illustrating the *Comnedia"* (*Ital,* 104). L. Olschki, in "Dante and Peter de Vines" (*RR,* 105) gives a psychological reason for the author's attitude toward the character. *The influence of Dante and Petrarch on Certain of Boccaccio's Lyrics* (Banta) gave more complete form to opinions previously voiced by G. R. Silver. V. Cioffari wrote on "The Conception of Fortune in the *Decameron"* (*Ital,* 129).

Fifteenth Century.—K. McKenzie presented the fifteenth century Florentine poet "Antonio Pucci on Old Age" (*Spec,* 160). F. D. Colimore discussed "The date of Machiavelli's *Mandragola* (*MLN,* 526). "Balthazar Rasinus and his praise of studies at the University of Pavia" (*SP,* 133) was the study of W. Hammer. D. Vittorini contributed a brief article on good taste in *"I Dialogi ad Petrum Histrum di Leonardo Bruni Aretino"* (*PMLA,* 714).

Sixteenth Century.—J. L. Lievsay, "Notes on *The art of Conversation"* (*Ital,* 58) written by Stefano Guazzo; A. L. Mezzacappa, "The Love Lyrics of Pomponio Torelli" (*Ital,* 49); D. C. Allen on the origins of "The lapidary of Aeneas Sylvius Piccolomini" (*Ital,* 1). O. H. Moore believes that "Da Porto's deviations from Masuccio" (*PMLA,* 934) are traceable to Ovid and not to originality.

Eighteenth Century.—M. A. de Felippis published "Some Accrostical Revelations" (*Ital*) in a manuscript collection belonging originally to Trevisani, whose *La Cristina, tregedia inedita* (Calif.) he also published. E. Gianturco offered some "Critical reflections on Karl Joel's appraisal of Vico" (*Ital,* 163). K. McKenzie contributed a fine survey of "Romanticism: Italy" (*PMLA,* 27) which was part of a comprehensive symposium. "The one hundredth anniversary of Allessandro Manzoni's *I promessi sposi"* (*Ital,* 167) commented on by R. U. Pane also occasioned S. E. Scalia's *"Ancora la Vigna di Renzo"* (*Ital,* 138), an interpretation.

Other studies in the Italian field: H. L. Norman, "A note on Leopardi's *Bruto Minore"* (*MLN,* 524); F. Forberti, *"Brevi spigolature critiche nel campo gioachimeta"* (*Ital,* 33); and T. G. Bergin, "Riccardo Bacchelli" (*Ital,* 64), the biography of a modern.

SPANISH

General.—The trend in Spanish studies brought the nineteenth century into sharper focus. A needed critical edition of *El Arcipreste de Talavera* (Calif.) was made by L. B. Simpson. D. M. Kress reviewed pertinent facts concerning "Juan Luis Vives" (*MLJ,* 19).

The Spanish picaresque novel included J. E. Gillet, "A note on the *Lazarillo de Tormes"* (*MLN,* 130); A. Bates, "Historical characters in *Estebanillo González"* (*HR,* 63); E. R. Moore, "Estebanillo Gonzalez's travels in southern Europe" (*HR,* 24), commentary on the text.

Versification.—Three interesting studies on versification appeared. In "The octasyllabic *cuaderna vía* of Juan Ruiz" (*HR,* 125) H. H. Arnold put forward a definition; D. C. Clarke expressed a belief that "The *coplas de arte mayor*" (*HR,* 202) developed through the Galician-Portuguese from an Old Provençal hendecasyllabic seven- or eight-verse strophe; and E. S. Morby, "Notes on Juan de la Cueva: versification and dramatic theory" (*HR,* 213). Another on the history of a verse form: *A study of the villancico up to Lope de Vega* (Catholic U. of A.)

The Golden Age.—From an examination of "Games and social pastimes in the Spanish drama of the Golden Age" (*HR,* 219) G. I. Dale concludes that they were used to arouse interest and as plot accessories. The same writer described *"'Periodismo' in El arenal de Seville"* (*HR,* 18) which dates Lope's play. S. G. Morley and C. Bruerton attempted to establish the *Chronology of Lope de Vega's Comedias* (MLA) by analyzing his strophic versification. M. Romera-Navarro reprinted *"Dos aprobaciones de Gracián"* (*HR,* 257) and published the third volume of the same writer's *El criticón,* (MLA), a critical text. G. E. Wade wrote "The orthoëpy of the holographical *comedias* of Tirso de Molina" (*PMLA,* 993). E. H. Templin attempted to define the concept of "The *'burla'* in the plays of Tirso de Molina" (*HR,* 185) while describing its function in play writing. F. C. Tarr in "Recent trends in Cervantes studies" (*RR,* 16) declared that the trend has been interpretative not documentary. One seventeenth century study: McK. Petty found

"The dedication of Alvárez de Toledo's *Purén indómito*" (*HR,* 254) changed.

Nineteenth Century.—J. H. Nunemaker published the manuscript of "An anonymous Royalist diatribe in *décimas* against the Constitution of 1812" (*Hisp,* 263). F. C. Tarr gave a suggestive view of "Romanticism: Spain" (*PMLA,* 35). "Eugenio de Tapia" (*HR,* 145), declared M. E. Porter, exhibited not only the materials but also the manner and methods of the *costumbristas.* W. Moellering examined the literary relationship between "Eugenio de Tapia and Mesonero Romanos" (*Hisp,* 241). A. K. Shields, who fixed "García Gutiérrez's birth date" (*MLN,* 296), writing "On the Literary Principles and Pseudonymous Work of Juan Nicasio Gallego" (*HR,* 242) calls for revision of general opinion about his literary tastes and tendencies. J. K. Leslie contributed a valuable study, *Ventura de la Vega and the Spanish Theatre, 1820-1865* (Princeton), containing useful indexes. S. H. Eoff wrote a history of critical opinions about "The Spanish Novel of 'Ideas'" (*PMLA,* 531) as recorded in nineteenth century literary periodicals. L. W. Elliott and F. M. Kercheville in "Galdós and abnormal psychology" (*Hisp,* 27) declare that the dramatist anticipated Freud. Other articles were R. Schevill, "Spain's yesterday and tomorrow" (*Hisp,* 209), sensitive and hopeful; P. Salinas, *Reality and the Poet in Spanish Poetry,* (JHP), poetic and persuasive.

PORTUGUESE

Two Portuguese items were K. S. Roberts and E. Cross in a controversy on the "Lack of syncope in Portuguese" (*PMLA,* 596), and H. H. Carter published a "Paleographical Edition of an Old Portuguese Version of the Rule of Saint Bernard" (*PMLA,* 360).

SPANISH AMERICAN LITERATURE

The Novel.—The novel, modernism, and Mexican literature were the chief themes of scholarly studies in this growing field. J. R. Spell reported on "A New Orleans Edition of *La Risa* (*Hisp,* 81), a Madrid periodical of 1843-44. The celebration of the Hostos centenary was fruitful. J. Padín wrote "Eugenio María de Hostos, *revolucionario*" (*RHM,* 1939: 301); A. Duarte, *"Rebeldía y disciplina en Hostos"* (*RHM,* 1939: 289); and M. Lee, "Eugenio María de Hostos" (*BA,* 124). J. A. Crow recounted his experiences with "Federico García Lorca en Hispanoamérica" (*RI,* 2: 307). *"El teatro en Lima, 1790-1793"* (*HR,* 93) was chronicled by I. A. Leonard.

Modernism.—G. W. Umphrey wrote "Fifty years of Modernism in Spanish-American Poetry" (*MLQ,* 101); "Fabio Fiallo" (*Hisp,* 116) and "Julian del Casal" (*Hisp,* 73) by M. H. Nunn; *"Apuntes y documentos para la biografía de Rubén Darío"* (*RI,* 3: 173). C García-Prada interestingly interpreted *"El paisaje en la Poesía de José Eustaquio Rivera y José Asunción Silva"* (*Hisp,* 37). But a trend away from *paisajismo* was seen by J. T. Reed in "Recent Theories of *americanismo*" (*Hisp,* 67), who also wrote about a visit to the Colombian poet, Guillermo Valencia (*RI,* 3: 199). E. S. Morby answered affirmatively his *"¿Es 'Don Segundo Sombra' novela picaresca?"* (*RI,* 2: 375). A contemporary Chilean prose writer, "Rosario Beltrán" (*Hisp,* 237) was the subject of a paper by C. S. Espinosa. M. P. González discussed two new novels by Azuela and López y Fuentes (*RI,* 2: 321). A Torres-Ríoseco continued his essay on "Carlos Reyles, II" (*RI,* 2: 339), published a major work of criticism in *Novelistas Contemporáneos de América* (Santiago de Chile), and discovered the Bolivian philosopher Humberto Palza in *"Consideraciones acerca del pensamiento hispanoamericano"* (*RI,* 2: 277). V. A. Warren wrote about Clemente Palma, the son of the Peruvian chronicler (*RI,* 3: 161).

Mexicana.—C. and A. Tyre wrote "Snapshots of Mexican School Life from 1816 to 1936" (*Hisp,* 229), as seen in several novels; M. Halperin, "The Social Background of Contemporary Mexican Literature" (*PMLA,* 875); D. Schons, "Alarcon's Reputation in Mexico" (*HR,* 139); E. Warner, "Altamirano's *Rimas,* second edition" (*HR,* 262); E. K. Mapes compiled Gutiérrez Nájero's *"Obras inéditas recogidas de periódicos de México"* (*RHM,* 50, 139, 250, 337) and continued to publish with Saavedra Molina *Obras escogidas de Rubén Darío;* J. A. Crow, *"El drama de la revolución mexicana"* (*RHM,* 1939: 20), on Magdaleno and Bustillo Oro; E. R. Moore, "Federico Gamboa, Diplomat and Novelist" (*BA,* 364), "Novelists of the Mexican Revolution," a series (*Mexican Life,* nos. 7-12), and *Novelistas de la revolución mexicana: J. Rubén Romero* (Havana).

COMPARATIVE LITERATURE

French Influences.—V. L. Dedeck-Héry wrote "The manuscripts of the translation of Boethius' *Consolatio* by Jean de Meung" (*Spec,* 432); H. A. Grubbs, "J. B. Rousseau as an Imitator of Ben Jonson" (*MLN,* 170). E. C. Mossner, "Rousseau Hero-worship" (*MLN,* 449); B. M. Woodbridge, "Rousseau and Faust" (*MLN,* 581), on similar moods; G. R. Havens, "Rousseau, Melon and Sir Wm. Petty" (*MLN,* 449); J. H. Warner, "The Basis of J. J. Rousseau's Contemporaneous Reputation in England" (*MLN,* 270). D. E. Baughan argued for borrowings and influence of the latter in "Swift and Gentillet" (*SP,* 64). "Favras and Hugo's *Marie Tudor*" (*MLN,* 24) by G. B. Fitch; *"Sur une biographie de Byron ayant appartenu à Stendhal"* (*RR,* 280) by T. R. Palfrey; "Translation of Zola in the United States Prior to 1900" (*MLN,* 520), by M. B. Jones. S. A. Rhodes in "The Influence of Walt Whitman on André Gide" (*RR,* 156) stated their common ideal: "the salvation of the individual soul in the modern world." H. Mason wrote on *The French Theatre in New York* (Colombia).

Spanish.—J. G. Fucilla offered some "Notes on the vogue of Cervantes in Italy" (*HR,* 161); D. F. Atkinson proved Spenser's debt to the *Espeio de caballerías* in "Busirane's Castle and Artidon's Cave" (*MLQ,* 185); E. B. Knowles discussed the shift of critical opinion in his *Don Quixote through English eyes* (*Hisp,* 103).

Italian.—M. Di Giovanni wrote "The Italian Friends of Longfellow" (*Ital,* 144), principally Manzoni; E Goggio, "Emerson's Interest in Italy" (*Ital,* 97); C. B. Beall, *"Un recueil italianisant du XVIIIe. siècle française"* (*MLN,* 528); T. Rich, *Harington and Ariosto* (Yale); H. W. Rudman, *Italian Nationalism and English Letters* (Columbia); J. G. Fucilla declared that Meléndez Valdés initiated the vogue for "Metastasio's Lyrics in Eighteenth Century Spain" (*MLQ,* 311) and also wrote "Italian Manuscript Versions of *La vida es sueño* and *El delincuente honrado*" (*Ital,* 109). In "More Swinborne-d'Annunzio Parallels" (*PMLA,* 559), C. S. Brown indicated the influence of the former on the latter. D. C. Boughner found Shakespeare's "Don Armando and the *commendia dell'arte*" (*SP,* 224) not closely related. G. L. Finney discovered two Italian sources and a category for Milton's *Comus, drama per musica*" (*SP,* 482).

XXV. LITERATURE AND LANGUAGE

LATIN LITERATURE

By John William Spaeth, Jr.
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LOEB CLASSICAL LIBRARY

A 1940 addition to this series is Volume 3 of *Pliny, Natural History,* containing Books VIII-XI, translated by H. Rackham.

CLASSICAL LATIN AUTHORS*

J. N. Hough continues his work on Plautus with an investigation of the playwright's technique in delayed exits (*CP* 35, 39 ff.) and a study of "link-monologues" as a further criterion for determining Plautine chronology (*TAPA* 70, 231 ff.). P. W. Harsh (*CP* 35, 126 ff.) aims to refute the theory that archaic forms in Plautus were used solely for metrical convenience. A brief article entitled "Plautus Comments on Anatolian Affairs," by the late Tenney Frank, appears in *Anatolian Studies Presented to W. H. Buckler* (Manchester, Eng., 1939). G. E. Duckworth has published an elaborate edition of the Epidicus (Princeton Univ. Press, 1940). In *CJ* 35, 460 ff. Cornelia C. Coulter discusses the early Roman *fabula praetexta* and in particular the *Brutus* of L. Accius.

In an essay in *AJP* 61, 278 ff. Cyril Bailey concludes that the workings of Lucretius' mind "were more those of the poet than those of the philosopher." C. Murley contends (*TAPA* 70, 380 ff.) that Lucretius well deserves a place in the history of satire, and P. De Lacy (*PAPA* 70, xxxvii f.) briefly indicates the debt of Lucretius to Greek pastoral poetry. P. Friedländer argues (*TAPA* 70, 368 ff.) that lines 44-49 of Book I, frequently eliminated by editors from this position in the *De Rerum Natura,* really belong here. In *CJ* 35, 348 ff. E. H. Green writes about Furius Bibaculus, contemporary of Catullus. J. N. Hough (*CP* 35, 190 ff.) offers an interpretation of the phrase *apertos cuniculos* in Caesar's *Bellum Gallicum* VII, 22, 5. P. R. Coleman-Norton continues his useful surveys of Cicero's works with treatments of the philosophical treatises (*CB* 16, 33 ff.) and the correspondence (*ibid.* 17, 13 ff.). F. P. Donnelly has published an annotated edition of *Cicero's Manilian Law* (Fordham Univ. Press, 1939) and F. A. Sullivan an edition of sections 303-324 of the *Brutus* under the title of *Cicero's Oratorical Education* (*ibid.,* 1940). F. Solmsen (*CP* 35, 423 f.) has discovered some new fragments of the *De Republica* lurking in Augustine's *De Civitate Dei.* Thelma B. De Graff (ibid. 143 ff.) studies Cicero's references to Plato and his works, and W. Allen, Jr. (*CJ* 35, 291 ff.) adds further comments on the location of Cicero's Palatine dwelling.

"The Epic Question in Vergil," by F. H. Cowles (*CJ* 36, 133 ff.), discusses Vergil's treatment of the eternally troubling question, "Why should a good man suffer?" C. J. Treacy (*The School* 28, 325 ff.) writes on the *puer* of the Fourth *Eclogue.* G. E. Duckworth contributes an essay on "Turnus as a Tragic Character" (*Vergilius* 4, 5 ff.) and a bibliographical survey of recent work on Vergil (*ibid.,* 44 f.). Horace was the special focus of much scholarly study in 1940. G. K. Strodach (*CJ* 36, 1 ff.) deems Horace's individualistic philosophy of life inadequate as a practical code for his contemporaries. E. A. Hahn (*PAPA* 70, 213 ff.) has studied the mutual relationships existing between *Epodes* 5 and 17 and *Odes* I, 16-17, and E. H. Sturtevant (*ibid.*, 295 ff.) explains Horace's manifesto in *Odes* III, 30, 10-14 as signifying his recognition of a radical metrical change introduced into the Sapphic strophe. R. C. Flickinger (*PAPA* 70, xxxiii ff.) believes that it was at Athens that Horace became acquainted with Aristotle's *Poetics.* R. E. Watkins has published *A History of Paragraph Divisions in Horace's Epistles* (Iowa Studies in Classical Philology X, 1940). H. H. Chamberlin has produced a deft verse translation of the *Satires* under the title *Horace Talks* (Norwood, Mass., 1940). The use of mythological examples by Propertius is treated briefly by A. W. Allen (*PAPA* 70, xxviii f.). In *AJP* 61, 445 ff. M. Hadas points out the kinship of Livy with the writers of the Old Testament narrative.

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* *Periodicals are abbreviated as follows: AJA, American Journal of Archaeology; AJP, American Journal of Philology; CB, Classical Bulletin; CJ, Classical Journal; CO, Classical Outlook; CP, Classical Philology; CW, Classical Weekly; Lang., Language; PQ, Philological Quarterly; Spec., Speculum; TAPA, Transactions of the American Philological Association; PAPA, Proceedings of the same.*

R. J. Deferrari, with the assistance of Sisters M. W. Fanning and A. S. Sullivan, has brought out *A Concordance of Lucan* (Washington, 1940), and Norma D. Young, an *Index Verborum Silianus* (Iowa Studies in Classical Philology VIII, 1939). W. C. Helmbold (*Mnemosyne* 8, 255 f.) contributes brief notes on Quintilian and Lucan. In *CP* 35, 259 ff. R. J. Getty proposes a reconstruction of the opening passage of Valerius Flaccus' *Argonautica,* and Cornelia C. Coulter (*ibid.*, 60 ff.) offers "Further Notes on the Ritual of the Bithynian Christians" as an interpretation of Pliny's famous epistle. *Latin Poetry of the Empire* (Allyn and Bacon, 1940), edited by Donnis Martin and Gladys Martin, is an attractive annotated anthology, ranging from Phaedrus to Claudian.

LATE LATIN LITERATURE: MEDIEVAL AND RENAISSANCE

In *TAPA* 70, 515 ff. Dorothy M. Robathan upholds the dependability of the *Scriptores Historiae Augustae* in their statements about topography. J. C. Rolfe (*ibid.*, 342 ff.) contributes some notes on Ammianus Marcellinus. The *De Arte Coquinaria,* attributed to Apicius, is interestingly discussed by D. N. Robinson in *CB* 16, 45 f. and 55 f. The critical edition of the *Altercatio Hadriani Augusti et Epicteti Philosophi* by L. W. Daly and W. Suchier (Univ. of Illinois Press, 1939) includes an extensive introduction. Recent volumes of the Catholic University of America Patristic Studies include J. N. Hritzu's *The Style of the Letters of St. Jerome* (Washington, 1939), T. A. Kelly's *Sancti Ambrosii Liber De Consolatione Valentiniani,* with text and translation (1940), and Sister M. B. Carroll's *The Clausulae in the Confessions of St. Augustine* (1940). In *CP* 35, 294 ff. Sister M. E. Keenan discusses briefly the extensive use of the terminology of witchcraft in St. Augustine's works.

New editions of medieval and Renaissance works include the Venerable Bede's *Expositio Actum Apostolorum et Retractatio,* edited by M. L. W. Laistner (Mediaeval Academy of America, 1940); *Iohannis Scotti Annotationes in Marcianum,* a hitherto unpublished commentary on the *De Nuptiis Philologiae et Mercurii* of Martianus Capella, edited by Cora E. Lutz (*ibid.*, 1939); *The Steps of Humility, By Bernard, Abbott of Clairvaux,* translated and annotated by G. B. Burch (Harvard Univ. Press, 1940); the anonymous *Narratio de Itinere Navali Peregrinorum Hierosolymam Tendentium et Silviam Capientium, A. D. 1189,* edited by C. W. David (American Philosophical Society, Philadelphia, 1939); *Aeneae Silvii De Liberorum Educatione,* text and translation, edited by J. S. Nelson (Catholic Univ. of America Press, Washington, 1940); John Rainolds' *Oratio in Laudem Artis Poeticae* [*circa 1572*], edited with text and translation by W. Ringler and W. Allen, Jr. (Princeton Univ. Press, 1940); Bernardino Ramazzini's *De Morbis Artificum,* edited, with revised text and translation, by W. C. Wright under the title *Diseases of Workers* (Univ. of Chicago Press, 1940). J. C. Richards' discussion of "A New Manuscript of Heraclius" (*Spec.* 15, 255 ff.) includes an edited text, as do also J. Hammer's article concerning a Latin commentary on Geoffrey of Monmouth's *Prophetia Merlini* (*ibid.*, 409 ff.) and C. R. Thompson's article on a recently discovered translation by Erasmus of Lucian's *Longaevi* (*CP* 35, 397 ff.). C. R. Thompson is the author also of a dissertation entitled *The Translations of Lucian by Erasmus and Sir Thomas More* (Ithaca, N. Y., 1940). In *TAPA* 70, 303 ff. L. K. Born discusses the significance of numerous quotations and citations in John of Garland's *Accentarium*.

LITERARY HISTORY AND CRITICISM

A Study of Act Division in Classical Drama (Iowa Studies in Classical Philology IX, 1940) is a dissertation by R. T. Weissinger. J. E. A. Crake (*CP* 35, 375 ff.) discusses the *Annales* of the Pontifex Maximus from several aspects. Elizabeth H. Haight has published *The Roman Use of Anecdotes in Cicero, Livy and the Satirists* (Longmans, Green, 1940). In *CP* 35, 56 ff. K. Latte explains Pollio's remark about Livy's *Patavinitas* as a witticism. C. Murley writes on the use of messenger gods by Vergil and Homer (*Vergilius* 3, 3 ff.). In two articles (*AJP* 61, 429 ff. and *TAPA* 70, 439 ff.) J. E. Fontenrose corrects the mistaken notion that Ovid and his contemporaries in poetry identified Apollo and Sol, the sun-god.

In *AJP* 61, 330 ff. J. E. Dunlap edits and discusses some fragments of a Latin grammar found in Egypt. E. K. Rand is the author of a chapter on "The Latin Literature of the West from the Antonines to Constantine" in Volume 12 of *The Cambridge Ancient History*, and M. L. W. Laistner of an essay, in *CP* 35, 241 ff., on Latin historical writing in the fifth century.

J. W. Spaeth, Jr., in *TAPA* 70, 242 ff., traces the indebtedness of the Latin pasquinade of Renaissance Rome to Martial, and H. E. Wedeck (*PQ* 19, 400 ff.) writes briefly on Ioannes Secundus as a follower of Catullus. Aspects of Milton's Latin poems are discussed in articles by G. B. A. Fletcher (*Modern Philology* 37, 343 ff.) and F. R. B. Godolphin (*ibid.*, 351 ff.). In *PQ* 18, 211 ff. and *PMLA* 55, 119 ff. R. A. Brower deals with Dryden's indebtedness to Vergil, and in *PQ* 18, 269 ff. F. L. Huntley writes on Dryden's use of Juvenal's eighth satire. *The Critical Methods and Influence of Bentley's Horace* (Univ. of Chicago Libraries, 1939) is a dissertation by H. R. Joliffe. In *TAPA* 70, 37 ff. T. B. Jones contributes a study of "The Classics in Colonial Hispanic America."

TEXT-HISTORY AND PALAEOGRAPHY

C. H. Beeson (*CP* 35, 113 ff.) produces evidence of "Insular activity in the transmission of the text of the Corpus Caesarianum." Dorothy M. Schullian (*AJP* 61, 202 ff.) finds certain twelfth century excerpts from Valerius Maximus useful for a study of the text-history; E. T. Silk (*TAPA* 70, 352 ff.) contributes "Notes on Two Neglected Manuscripts of Boethius' *Consolatio Philosophiae*"; and A. P. McKinlay (*Spec.* 15, 95 ff.) writes briefly on *"membra disiecta"* of manuscripts of Arator. L. W. Jones furnishes a detailed study of the art of writing at Tours from 1000 to 1200 (*Spec.* 15, 286 ff.), and he and E. K. Rand (*TAPA* 70, 319 ff. and 327 ff.) emphasize the value of "pin-prickings" as useful criteria for dating and possibly for placing manuscripts. R. P. Robinson's monograph, *Manuscripts 27 (S. 29) and 107 (S. 129) of the Municipal Library of Autun* (American Academy in Rome, 1939), is "a study of the Spanish half-uncial and early Visigothic minuscule and cursive scripts." S. de Ricci and W. J. Wilson have brought out the third and final volume of their *Census of Medieval and Renaissance Manuscripts in the United States and Canada* (H. W. Wilson, N. Y., 1940).

LANGUAGE AND GRAMMAR

In *AJP* 61, 307 ff. A. C. Moorhouse reports "Observations on Chronology in Sound-Changes in the Italic Dialects," and in *CP* 35, 186 ff. J. Whatmough offers further confirmation that Raetic was fundamentally an Indo-European dialect. In *Lang.* 16, 88 ff. and *CB* 17, 9 f., N. W. DeWitt furnishes notes on Latin semantics and etymologies. J. N. Heller's article "Festus on *Nenia*" (*TAPA* 70, 357 ff.) elucidates a troublesome passage, and in *CJ* 35, 209 ff. and 326 ff. the same writer provides a useful "English-French-Latin Word List for Familiar Concepts." *The Neuter Plural in Latin Iambic and Trochaic Verse* (Baltimore, 1939) is a University of Pennsylvania dissertation by Jessie M. Glenn. Revised editions of R. G. Kent's *The Sounds of Latin* and E. H. Sturtevant's *The Pronunciation of Greek and Latin* (Philadelphia, 1940) have been published.

EPIGRAPHY AND NUMISMATICS

G. McCracken (*AJP* 61, 73 ff.) has edited a hitherto unpublished altar inscription from Frascati and indicates its possible significance. D. F. Brown's *Temples of Rome as Coin Types* and A. R. Bellinger's *The Syrian Tetradrachms of Caracalla and Macrinus* are two recent monographs published by the American Numismatic Society (N. Y., 1940).

POLITICAL, SOCIAL, AND ECONOMIC HISTORY

Inez S. Ryberg has published *An Archaeological Record of Rome, VII-II Centuries B. C.* (Univ. of Pennsylvania Press, 1940). G. McCracken's *History of Ancient Tusculum* has been issued in microfilm by the American Documentation Institute (Washington, 1939). In *TAPA* 70, 93 ff. F. M. Wood, Jr. traces the demonstrably false tradition of Flaminius' "selfish ambition" back to Polybius. D. Magie's study, "Rome and the City-States of Western Asia Minor from 200 to 133 B.C.," appears in *Anatolian Studies Presented to W. H. Buckler* (Manchester, Eng., 1939). R. M. Geer discusses the land law of Tiberius Gracchus (*TAPA* 70, 30 ff.). P. W. Townsend (*CP* 35, 274 ff.) writes about the oil tribute of Africa in Julius Caesar's time, W. G. Fletcher (*Tapa* 70, 17 ff.) about the origin of the Pontic cities of Pompey, and Eva M. Sanford (*ibid.*, 64 ff.) an appraisal of the political career of Aulus Gabinius. *The Roman Art of War under the Republic* (Harvard Univ. Press, 1940) by F. E. Adcock is Volume 8 in the series of Martin Classical Lectures.

The late Tenney Frank's *Rome and Italy of the Empire* (Johns Hopkins Press, 1940) constitutes Volume 5 of *An Economic Survey of Ancient Rome;* a general index of all five volumes has been compiled by T. R. S. Broughton and Lily R. Taylor. In *CP* 35, 1 ff. J. W. Swain provides a penetrating study of the "theory of the four monarchies," a theory that had a pagan origin and produced a philosophy of history endorsed for many centuries by opponents of Roman imperialism. F. Morison's *And Pilate Said* (Scribner's, 1940) is a biography of the Roman procurator. *Urbanization and the Franchise in Roman Gaul* (Lancaster, Pa., 1940) is a dissertation by N. J. DeWitt. H. V. Cantor contributes an essay (*CJ* 35, 197 ff.) on Roman civilization in northern Africa. *The Emperor Claudius* (Harvard Univ. Press, 1940) is a biographical study by V. M. Scramuzza. In *AJA* 43, 601 ff. M. Stuart shows that imperial portraits were distributed throughout the Roman Empire in the first two centuries by the ordinary channels of the art trade. G. Downey's *Study of the Comites Orientis and the Consulares Syriae* (Princeton Univ. Press, 1939) is a summary of a Princeton dissertation. F. J. Teggart's *Rome and China* (Univ. of California Press, 1939) aims to present "a study of correlations in historical events." Two legal studies are L. Wenger's *Institutes of the Roman Law of Civil Procedure,* translated by O. H. Fisk (Veritas Press, N. Y., 1940) and H. J. Wolff's *Written and Unwritten Marriages in Hellenistic and Post-Classical Roman Law* (Monograph IX of the American Philological Association, 1939).

The Yale University Press has published (1940) *Daily Life in Ancient Rome* by J. Carcopino, translated by E. O. Lorimer, with notes by H. T. Rowell. Marjorie J. Rivenburg's dissertation is entitled *Fashionable Life in Rome as Portrayed by Seneca* (Philadelphia, 1939). In his article

"Morituri Te Salutamus" (*TAPA* 70, 46 ff.) H. J. Leon demonstrates that "there is no evidence whatever for the much-quoted salute of the *gladiators.*" A useful *Guide for Readings in English on Roman Civilization,* by O. E. Nybakken, has been published by the American Classical League (N. Y., 1940).

PHILOSOPHY AND RELIGION

O. E. Nybakken's essay, "Humanitas Romana" (*TAPA* 70, 396 ff.), is a discussion of the conception of *humanitas,* embracing both humanism and humanitarianism, as entertained by enlightened Romans. In *CJ* 35, 486 ff. G. McCracken contributes a note on "Tiberius and the Cult of the Dioscuri at Tusculum." F. A. Sullivan (*TAPA* 70, 503 ff.) indicates that the names found in Roman metrical epitaphs "tell a story of racial and religious mixture," A. S. Hoey (*ibid.,* 456 ff.) discusses the official policy of toleration entertained towards Oriental cults in the Roman imperial army, and J. C. Plumpe (*ibid.,* 535 ff.) investigates the early history of the expression *Ecclesia Mater* as a title of the Christian Church.

GENERAL AND MISCELLANEOUS

The Ancient Classics in a Modern Democracy, by Samuel E. Morison (Oxford Univ. Press, 1939), is an eloquent statement of the values of classical study. In *CO* 17, 30 f. and 37 f. E. S. McCartney writes interestingly on ventriloquism in antiquity. A. W. Van Buren's "News Items from Rome" (*AJA* 44, 376 ff.) provides, as usual, a useful survey of recent archaeological progress in Italy. Bibliographical information is afforded by the extensive lists of "Recent Publications" and "Abstracts of Articles" that appear regularly in *CW* and by the lists of "Recent Books" and "Classical Articles in Non-Classical Periodicals" that alternate in *CJ.*

GREEK LITERATURE

By William Stuart Messer

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LOEB CLASSICAL LIBRARY

The following volumes have been published since the last report: *Demosthenes, Private Orations* (vol. 3), A. T. Murray; and *Nonnos, Dionysiaca* (vols. 1-3), W. H. D. Rouse.*

LANGUAGE, LITERATURE, AND LITERARY CRITICISM

In the field of Homer, G. M. Calhoun continues his studies of the poet's manipulation of the divine element in his poems in an article entitled "The Divine Entourage in Homer" (*AJP* 61, 257). Here he points out that every crucial moment and every major character at a crisis is provided with its divine entourage, as a mere epic convention, which, if correctly understood, would remove many fancied difficulties. In "Homer's Transformation of History" (*CJ* 35,-471), R. K. Hack warns even excellent historians that it is not an easy task to deduce the historic Agamemnon from the Agamemnon of the poems; the poet consciously gives the "heroes" a superhuman status: they are not identical with the mortal Mycenaeans out of whom they were created. According to L. A. Post (*TAPA* 70, 158), Homer aims to present a moral pattern in each poem—heroic in the *Iliad,* domestic in the

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* Abbreviations: *AJA, American Journal of Archaeology; AJP, American Journal of Philology; CJ, Classical Journal; CP, Classical Philology; HSCP, Harvard Studies in Classical Philology; TAPA, Transactions of the American Philological Association.* Titles of books, monographs, and periodicals are italicized; those of articles are in quotation marks.

Odyssey. G. W. Elderkin in "The Homeric Cave on Ithaca" (*CP* 35, 52) interprets the cave of Odyssey 13, 95-112, a sanctuary of the nymphs, as simply a place of initiation into sacred mysteries.

D. Grene believes that in the *Prometheus Bound* the clearly defined dramatic design is not action, all important to Sophocles, Euripides, and Aristotle, but to teach a positive theology by character symbolism, and so narrative takes the place of action (*CP* 35, 22). C. M. Bowra, in "Sophocles on his Own Development" (*AJP* 61, 385), applies his self-account in Plutarch's tract *De Profectibus in Virtue 7* to the stages of Sophocles's art. W. N. Bates has published a book on *Sophocles, Poet and Dramatist* (Univ. of Pennsylvania Press, Phila., 1940). In *AJP* 61, 422, H. W. Miller in "Euripides and Eustathius" demonstrates the remarkable accuracy of Eustathius's citations from Euripides and surmises a manuscript used by him of only five plays of Euripides. J. E. Harry, in "Médée énigmatique" (*Revue de Philologie* 13, 5), examines the interpretations of others and gives his own exegesis of the famous crux, *Medea* 214-224.

A doctoral thesis by T. R. Weissinger is devoted to *A Study of Act Divisions in Classical Drama* (*Iowa Studies in Class. Phil.,* Des Moines, 1940). G. F. Else removes the illogicality of the statement of the *Poetics* about 'tragedy having developed out of the satyr-play' by arguing that this portion of the passage is spurious (*TAPA* 70, 139). According to J. H. Finley, in "The Origins of Thucydides' Style" (*HSCP* 50, 35), Thucydides reflected not only the ideas, but also the rhetorical practice of the period which he represented. T. S. Duncan, in "The Memoirs of Ion of Chios" (*TAPA* 70, 125), recapitulates from fragments and references some incidents related in Ion's memoirs on the great figures he had met.

E. H. Sturtevant has brought out a second, revised, edition of his useful monograph, *The Pronunciation of Greek and Latin* (Linguistic Society of America, Phila., 1940). E. G. O'Neill through the study of the ancipites of 1,000 iambic trimeters and 750 trochaic tetrameters from Greek tragedy draws some conclusions on "The Importance of Final Syllables in Greek Verse" (*TAPA* 70, 256). D. Stone gives the facts about the origin and progress of *The Lexicon of Patristic Greek* in a short paper in *Actes du Ve Congrès International de Papyrologie* 5, 453.

INSCRIPTIONS AND PAPYRI

Epigraphica Attica by B. D. Meritt (Harvard Univ. Press, 1940) gives a non-technical discussion of how to restore and interpret Greek inscriptions. The inscriptions coming from the Agora are being promptly published, furnishing fresh data of historical importance and correcting old errors; three such articles are by B. D. Meritt, W. K. Pritchett, and E. Schweigert in *Hesperia* 9, 53; 9, 97; and 9, 309, respectively. In *AJP* 61, 345, E. Weston suggests "New Datings for Some Attic Honorary Decrees," owing to the current conviction that many inscriptions written in Ionic letters may be dated in the fifth century.

Another volume of the *Zenon Papyri* (vol. 2, Columbia Univ. Press, 1940) has been published by W. L. Westermann, C. W. Keyes, and H. Liebesny, containing business papers of the third century B.C., dealing with Palestine and Egypt. H. C. Youtie and O. M. Pearl, *Tax Rolls from Karanis,* Part II, Text and Indices (Univ. of Mich., 1939) is the supplementary volume promised some years ago (cf. *AYB* 1937, 860). From the Dura site have come some fragments which C. B. Welles has identified as parts of Herodotus V and of Appian's *Bellum Mithridaticum* (*TAPA* 70, 203).

HISTORY AND CIVILIZATION

Will Durant's *The Life of Greece* (Simon and Schuster, 1939) is a generous, well-illustrated volume, presenting a history of all things Greek from the earliest times to the Roman conquest; it is a noteworthy popularization. In a discussion of individual versus state, W. S. Ferguson denies emphatically that Periclean Athens approached a totalitarian state: it harmonized the self-abnegation judged necessary for political effectiveness with freedom of the human spirit (*American Historical Review* 45, 269). In "Corinth and the Argive Coalition" (*AJP* 61, 413). H. D. Westlake attempts to plot the intricacies of Corinthian diplomacy after the Peace of Nicias. Xenophon's *Constitution of the Lacedaemonians,* according to L. Strauss, "The Spirit of Sparta or the Taste of Xenophon" (*Social Research* 6, 502), is rather a disguised satire of Sparta than a glorification of the city and its spirit. C. A. Robinson is convinced from passages in Arrian that Alexander had farseeing plans, which did not exclude a western expedition (*AJP* 61, 402). A biography of *Alexander the Great* by L. V. Cummings (Houghton, 1940) has just appeared.

J. V. A. Fine, in "The Background of the Social War of 220-217" (*AJP* 61, 129), traces the complex causes of the war and notes Polybius's prejudice against any opponent of the Achaean League. The debt of the founding fathers to Polybius and other ancient writers on government has been summarized by G. Chinard in "Polybius and the American Constitution" (*Journal of the History of Ideas* 1, 38). W. B. Dinsmoor has made a contribution to the details of the Athenian archon list and calendar in a book, *The Athenian Archon List in the Light of Recent Discoveries* (Columbia Univ. Press, 1939); and discusses in *AJP* 61, 460 "Ptolemais and the Archon Sortition Cycles," tabulating anew the tribal affiliations of the board of archons listed in *IG,* II^2, 1706.

In "The 'Indulgent' Dionysius" (*TAPA* 70, 51), A. P. McKinlay gives an interesting rehabilitation of the character of Dionysius the Elder by transferring the 'indulgence' to the Younger. From the *Istoria* of Cristoforo Ivanovich, J. M. Paton has excerpted *The Venetians in Athens, 1687-1688* (Harvard Univ. Press, 1940). K. von Fritz, in "The Meaning of Hektēmoros" (*AJP* 61, 54), discusses the rental paid by debtors on their farms which had passed to the rich creditor. The solution of some of the thorny problems of a complicated subject will be found in H. J. Wolff's *Written and Unwritten Marriages in Hellenistic and Postclassical Roman Law* (*Philological Monographs,* No. 9, American Philological Asso., Haverford, Pa.).

ART AND ARCHAEOLOGY

The outstanding archaeological monograph of the year, for the nonarchaeological reader as well as for the specialist, was G. P. Stevens, *The Setting of the Periclean Parthenon* (*Hesperia,* Supplement III, Princeton, 1940); the combination of fine draftsman and imaginative scholar in the Director of the Athens School shows in the plans, drawings, and illustrations of this excellent monograph. C. W. Blegen and K. Kourouniotis published a preliminary report of their discovery in 1939 of a site, identified with the Homeric Pylos, with remains of a large palace, 618 tablets with a script similar to Linear B of Cnossus, and much else of importance, in "Excavations at Pylos, 1939" (*AJA* 43, 557; cf. *AYB* 1939, 897).

The Agora finds are receiving unusually prompt publication. One of the interesting by-products of this prompt publication is to outmode (scarcely has it appeared) Dörpfeld's *Alt-Athen und seine Agora* (1937 ff.). The following items appearing in *Hesperia* are important: T. L. Shear, "The Campaign of 1938" (8,201), stressing the extremely valuable results from the standpoint of topographical information; "The American Excavations in the Athenian Agora," seventeenth and eighteenth reports, with a general survey by T. L. Shear and details discussed by other collaborators (9, parts 1 & 3); W. B. Dinsmoor, "The Temple of Ares at Athens," a Doric temple, designed by the architect of the "Theseum" in the northwest corner of the agora (9, 1); H. A. Thompson, *The Tholos of Athens and its Predecessors* (Supplement 4, 1940). In addition to the above items in *Hesperia,* T. L. Shear reports also in *AJA* 43, 577, "Discoveries in the Agora in 1939," emphasizing the discovery of a Mycenaean rock-cut chamber tomb which shows by the wealth of its gold and ivory objects that Athens was a city of no mean importance at that early period.

O. Broneer gives a full publication of the earliest artificial water supply of Athens (*Hesperia* 8, 317) and reports on the "Excavations on the Slopes of the Acropolis, 1939" in *AJA* 44, 252. C. Roebuck catalogues and annotates, with illustrations, the pottery recovered from the north slope of the Acropolis in the operations of 1937-1938 (*Hesperia* 9, 141). On the American dig at Corinth, S. S. Weinberg summarizes the "Excavations at Corinth, 1938-1939" in the South Stoa, on Temple Hill, and west of the Museum; he dates the temple of Apollo early in the third quarter of the 6th century and finds an earlier 7th century temple on the site.

Out of the 100 odd houses from the late fifth and early fourth centuries found at Olynthus, G. E. Mylonas assembles fuller data than previously available for the Greek house of the classical period (*CJ* 35, 389). K. Lehmann-Hartleben, in "Second Campaign of Excavation in Samothrace" (*AJA* 44, 328), supplements his account, recorded in 1939, with notes on the campaign of that year. M. I. Rostovtzeff and others publish a preliminary report on the seventh and eighth seasons of work in *Excavations at Dura-Europos* (Yale Univ. Press, 1939). F. R. Grace presents a well-organized study, excellently illustrated, in *Archaic Sculpture in Boeotia* (Harvard Univ. Press, 1939); he emphasizes the conclusion that changes were transmitted very rapidly from place to place in this period, eliminating any peculiarly local modes. S. Young describes, with illustrations, an Athenian clepsydra, or water-clock, used in law courts for timing speeches: this one empties in six minutes (*Hesperia,* 8, 274).

An important paper on Greek vases is "Promĕtheus Fire-Lighter" by J. D. Beazley (*AJA* 43, 618): he explains a calyx-krater in Oxford as possibly inspired by the satyr-play of Aeschylus, Prometheus Purkaeus, and uses it to explain two other fifth century vase paintings. A unique document, as the earliest representation of the dress and masks worn by the actors in the great days of the Attic theater, is a fragment of an oinochoe published by L. Talcott, in "Kourimos Parthenos" (*Hesperia* 8, 267).

PHILOSOPHY AND RELIGION

The year's most important contribution to Platonic studies was undoubtedly the *Scholia Platonica,* edited by W. C. Greene (*Philological Monographs,* No. viii, Haverford, Pa., 1938): a monumental work which enlisted the labor of many scholars over nearly half a century. J. A. Notopoulos, in "Porphyry's Life of Plato" (*CP* 35, 284), holds, against Maass, that Apuleius must be used as our criterion for the reconstruction of Porphyry's fragmentary life. An article by M. W. Isenberg, "The Unity of Plato's Philebus" (*CP* 35, 154), attempts to demonstrate by diagram and careful analyses the 'strict unity' of a dialogue often adjudged lacking in plan. G. R. Morrow has produced a monograph on *Plato's Law of Slavery in its Relation to Greek Law (Illinois Studies in Lang. and Lit.* 35, Urbana, 1939). Philosophy in general has its place between the poles of theoretical objectivity and ethico-religious existence—Aristotle accentuates the former, Plato the latter—and in this, according to E. Frank (*AJP* 61, 34 & 166), lies "The Fundamental Opposition of Plato and Aristotle." A revised and reprinted edition of L. Cooper's *Aristotelian Papers* has appeared (Cornell Univ. Press, 1939).

W. A. Heidel argues that the rôle of Pythagoras and the Pythagoreans in the development of early Greek mathematics has been much exaggerated (*AJP* 61, 1). In a book entitled *Philo and the Oral Law* (Harvard Univ. Press, 1940), S. Belkin shows interdependence of thought between Palestinian and Alexandrian Jews and throws light on passages in Philo. K. Latte rejects Rohde's view that the Pythia was an innovation at Delphi, established under Dionysiac influence; the Pythia came to Delphi with Apollo (*Harvard Theol. Review* 33, 9). M. P. Nilsson traces the origin of belief among the Greeks in the divinity of the heavenly bodies partly to Plato and Aristotle (*Harvard Theol. Review* 33, 1). Euripides' interest in religious frenzy was probably aroused by the spread of Oriental cults in Athens during the Peloponnesian war, according to E. R. Dodds, in "Maenadism in the Bacchae" (*Harvard Theol. Review* 33, 155).

MISCELLANEOUS

W. K. Prentice is the author of *The Ancient Greeks* (Princeton Univ. Press, 1940), comprising mature studies toward a better understanding of the ancient world. The gentler virtues in Greek literature are considered in *The Quality of Mercy* by G. H. Macurdy (Yale Univ. Press, 1940). A useful volume for survey courses in classical civilization is R. C. Nemiah's *Selections from Ancient Greek Historians in English* (Scribner's, 1939). K. and S. Lake have added another fasciculus to *MPV* in *Dated Greek Minuscule Mss. to the Year 1200,* X, dealing with the mss. in Florence, Athens, Grottaferrata, and Meteora (Amer. Acad. Arts and Sciences, Boston, 1939). A. R. Bellinger has published with plates, map, and table the coins of *The Eighth and Ninth Dura Hoards* (Amer. Numismatic Society, N.Y., 1939). E. T. Newell continues his study of Seleucid coins in *Late Seleucid Mints in Ake-Ptolemais and Damascus* (Amer. Numismatic Society, N.Y., 1939). C. G. Starr deals with the vexed problem of the arrangement of the oarage of the Greco-Roman warship ("The Ancient Warship," *CP* 35, 353).

SEMITIC LANGUAGES AND LITERATURES

By A. J. Sachs

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GENERAL

Articles, reports, and reviews illustrative of the steady growth of research in Semitic languages and literatures in this country are to be found in the *American Journal of Archaeology, American Journal of Semitic Languages and Literatures, Ars Islamica, Biblical Archaeologist, Bulletin of the American Schools of Oriental Research, Hebrew Union College Annual, Jewish Quarterly Review, Journal of the American Oriental Society, Journal of Biblical Literature,* and *Moslem World.*

Owing to the present war, only two American excavations in the Near East—both, however, of extraordinary interest—were undertaken in the past year. Sponsored by the Boston Museum of Fine Arts and the Oriental Institute of the University of Chicago, a small staff under the direction of Calvin McEwan was able to begin excavations at Tell Fekheriyyah (at the headwaters of the Khabūr River in Syria) with a marked degree of success. Another season of excavations at Tell Kheleifah (Biblical Ezion-Geber), which was undoubtedly one of the most prominent copper-smelting towns of the Near East during most of the first millennium B.C., by an expedition directed by Nelson Glueck and sponsored by the American Schools of Oriental Research and the Smithsonian Institute, continued to yield important results.

MESOPOTAMIA

The Oriental Institute has published two more volumes of a group planned to present as a whole and in final form the work of its Iraq Expedition in the Diyālā region. The first presents in masterly fashion the results of the careful excavation of the Early Dynastic temple area at Khafājah, situated on the eastern bank of the Diyālā River about 15 miles north of its confluence with the Tigris: *The Temple Oval at Khafājah* (Oriental Institute Publications, Volume LIII; Chicago; xix, 75 pp.; 13 pls; $10), by P. Delougaz. The few inscriptions found are competently described and analyzed in a short chapter contributed by Thorkild Jacobsen. The Khafājah temple area is unique in that, notwithstanding the fact that temple ovals are not unknown elsewhere in Mesopotamia, it is only here that the dual rôle of the shrine as a center of worship and of social life is clearly reflected.

The second volume (*The Gimilsin Temple and the Palace of the Rulers at Tell Asmar* [Oriental Institute Publications, Volume XLIII; Chicago; xviii, 271 pp.; 131 figs.; 25 pls.; $12]) is the joint product of Henri Frankfort, Seton Lloyd, and Thorkild Jacobsen; a short chapter by Günter Martiny is also included. The sections written by Jacobsen (the epigrapher of the Iraq Expedition) form the largest part of the report and offer an ideal example of the great mutual profit which results from the close and sympathetic cooperation between archaeologist and epigrapher while the excavation is in progress. Jacobsen was able to give a remarkably detailed account of the political history of Eshnunna (modern Tell Asmar) from the Third Dynasty of Ur through the First Dynasty of Babylon. Lloyd's treatment of the architecture of the various palaces which came to light and Frankfort's study of the small objects have benefited greatly from the information yielded to Jacobsen by the cuneiform tablets. The general index at the end of the book, because of its completeness, will be of great use to Assyriologists and archaeologists.

Almost 200 seals have been published by Gustavus A. Eisen in a monograph entitled *Ancient Oriental Cylinder and Other Seals, with a Description of the Collection of Mrs. Wm. H. Moore* (Oriental Institute Publications, Volume XLVII; Chicago; xiii, 94 pp.; 17 pls.; $5). Thanks to publications such as this, many thousands of seals are now at the disposal of students of the history of ancient Near Eastern art. Among the seals in this newest volume, one notes with interest the inclusion of the now famous seal of Matrunna, daughter of Aplakhanda, who, according to recently excavated texts from Mari dated to the reign of Khammurapi of Babylon, is known to have been the king of Carchemish; this seal was stolen from the Museum of Lataqiyyah (Syria) several years ago.

Samuel N. Kramer's study of the *Lamentation over the Destruction of Ur* (Oriental Institute, Assyriological Studies, No. 12; Chicago; xii, 97 pp.; 4 pls.; $2) marks the achievement of another step in the author's ambitious plan to make accessible the major works of Sumerian literature. The composition which he treats in this book is unusually well preserved, consists of 436 lines (divided into 11 "songs"), and was composed and copied in the early Post-Sumerian period. The text is reconstructed on the basis of numerous fragments from ancient Nippur, now divided between the Museum of the University of Pennsylvania and the Nippur Collection of the Museum of the Ancient Orient in Istanbul; the author was fortunately able to collate or copy the texts in both museums. Although the liturgical sections are rather monotonous, the description of the devastation of Ur during and after a joint attack by Elamites and Subareans is so vivid and bitter as to raise the suspicion that the Sumerian author was a witness to the calamity. Kramer's work in Sumerian linguistics as a student of Poebel, coupled with his experience in interpreting Sumerian literary texts, is an excellent guaranty of the reliability of his translations.

Alexander Heidel's *The System of*

the Quadriliteral Verb in Akkadian (Oriental Institute, Assyriological Studies, No. 13; Chicago; xvii, 141 pp.; $1.25) is an expanded doctoral dissertation written under the direction of Arno Poebel. A short introductory chapter on the treatment of verbal roots consisting of four consonants in the other Semitic languages is followed by the presentation of the Akkadian evidence, in which the author has very wisely given the contexts in which the relevant forms occur. From the extant forms, Heidel was able to detect the three distinct conjugational patterns followed by the quadriliterals.

Another rewritten doctor's thesis, also written under Arno Poebel, is Richard T. Hallock's *The Chicago Syllabary and the Louvre Syllabary AO 7661* (Oriental Institute, Assyriological Studies, No. 7; Chicago; xiv, 79 pp.; 2 pls.; $4), offering a republication of the well known Chicago Syllabary, which, together with some related texts, is subjected to a thorough and systematic reappraisal. At this point may also be mentioned Henry Field's monograph on *The Anthropology of Iraq,* Part 1, No. 1: *The Upper Euphrates,* a publication of the Chicago Field Museum of Natural History.

IRAN

An excellent illustration of the value of aerial surveys to archaeologists is furnished by Erich F. Schmidt's *Flights over Ancient Cities of Iran* (Special Publication of the Oriental Institute; Chicago; xxii, 104 pp.; 119 pls.; $20). Selections of breath-taking airplane photographs taken between 1935 and 1937 show that under certain conditions almost the whole architectural plan of the top stratum of a buried city may be clearly revealed as if by x-ray.

ANATOLIA

A contribution to the vexing problem of Hittite geography has been made by Albrecht Goetze in his stimulating book on *Kizzuwatna and the Problem of Hittite Geography* (Yale Oriental Series, Researches, Volume XXII; New Haven; xi, 86 pp.; folding map; $2.50). The two current theories about the location of Kizzuwatna (Cilicia; Pontus), each with many followers, yield radically different pictures of the whole Hittite Empire. Goetze ably supports the Cilician theory in four fully documented and well reasoned chapters which treat many subjects ranging from linguistic geography to political history. All of the relevant passages from Hittite texts are given in transliteration and translation, thus offering the possibility of independent judgment to those who can not read the language. Complete indices appreciably increase the usefulness of the book as a whole. Goetze's researches will undoubtedly be the basic work in its field for many years.

PALESTINE, TRANSJORDAN, AND SYRIA

The most stimulating and ambitious book of the year is W. F. Albright's *From the Stone Age to Christianity: Monotheism and the Historical Process* (Baltimore; xi, 363 pp.; $2.50). The main contributions, at least for the present, lie in the domain of methodology, since Albright's hypotheses about the development of the idea of God in the Ancient Orient are certain to be debated for many years to come. This book is easily the outstanding work on the religion of Israel since Wellhausen's basic study of 60 years ago.

The Four Canaanite Temples of Beth-Shan (Part 1: *The Temples and Cult Objects* [Publications of the University Museum of the University of Pennsylvania, Volume II; Philadelphia; xiii, 101 pp.; 71 pls., including several colored charts; $15]) by Alan Rowe offers a wealth of valuable archaeological material, most of which is precisely dated according to strata.

In a compact little book entitled *The Other Side of the Jordan* (New Haven; xviii, 208 pp.; 127 figs.; $2.50), Nelson Glueck, the foremost archaeological explorer of Transjordan, has published a series of six lectures, embellished with much new illustrative material. Especially interesting are the chapters on Solomon's copper mines and his seaport at Ezion-Geber and the civilization of the Nabataeans, subjects which have been illuminated by the author's own researches.

EGYPT

The Epigraphic Survey of the Oriental Institute continues its exhaustive study of ancient Egyptian wall-reliefs with *Medinet Habu, Volume IV. Festival Scenes of Ramses III* (Oriental Institute Publications, Vol. LI; Chicago; xiii pp.; 57 pls., including colored frontispiece; $35).

Keith C. Seele's *The Coregency of Ramses II with Seti I and the Date of the Great Hypostyle Hall at Karnak* (Oriental Institute, Studies in Ancient Oriental Civilization, No. 19; Chicago; xiii, 95 pp.; 23 figs.; $2.75) traces in careful detail some new examples of the changing of inscriptions and reliefs of a Pharaoh by his successors.

INDO-EUROPEAN LINGUISTICS

By George S. Lane

Associate Professor, University of North Carolina

THE LINGUISTIC INSTITUTE

The Institute was held again in connection with the University of Michigan Summer Session, June 24-Aug. 16. As usual, professors from other institutions were present for courses or lectures, *e.g.* Bloomfield (Chicago), Kennedy (Yale), W. Edgerton (Chicago), Sturtevant (Yale), Kurath (Brown), Kent (Pennsylvania), F. Edgerton (Yale). The importance of the Linguistic Institute for Indo-European as well as other branches of linguistics can not be over-emphasized, bringing together in the summer as it does scholars from all fields so as to afford at a single place instruction in remote language areas and adequate introduction into the methods of linguistic science for teachers and students in widely scattered institutions. At the end of the session there was again held the annual summer meeting of the Linguistic Society of America.

At the close of this session, it was decided that it would be better for the Institute to move from place to place rather than to become definitely established at one institution (the University of Michigan had been host for five years in succession), and a committee on its future was appointed with Professor Sturtevant as chairman. Subsequently the University of North Carolina at Chapel Hill was invited to undertake the Institute, and the invitation was accepted by the Graduate School of the University. Plans are now in progress for the session of 1941 (June 12-July 19) at Chapel Hill. Inquiries should be addressed to Professor U. T. Holmes, director of the Linguistic Institute, Chapel Hill, N. C.

GENERAL

Of primary interest is the comprehensive work of Prof. L. H. Gray of Columbia, *Foundations of Language* (New York, Macmillan, 1939), coming as it does from one of the most eminent American scholars. An important critical review by Z. S. Harris, and additional notes, especially to the bibliography, by D. C. Swanson will be found in *Language* 16.216-35. The work is likewise reviewed by M. B. Emeneau in *Cl. Ph.* 35.311-15.

The importance of heteroclitic inflection in Indo-European has been frequently emphasized since the discovery of the rôle it plays in Hittite. The study by A. A. Nehring, "A Neglected Heteroclitic Noun", *Language* 16.1-11, brings evidence for this type of inflection in the Indo-European group of words to which Greek Ζεύς and Latin *diēs* belong.

The greatest advance which Indo-

European linguistics has made since the days of the "Junggrammatiker" is in the evolution of the "laryngeal hypothesis" with all that it implies regarding Pre-Indo-European vocalism. In their article, "The Laryngeal Hypothesis and Indo-Hittite, Indo-European Vocalism", *JAOS* 60.181-92, J. A. Kerns and B. Schwarz attempt to derive the Primitive Indo-European vocalism from the Primitive Indo-Hittite on the basis of the existence of four laryngeals. On the laryngeals see also the articles by Prof. Sturtevant under Hittite and Greek (below).

HITTITE

America's foremost scholar in the field, Prof. E. H. Sturtevant, has given us an excellent summary, popularly written, of his Indo-Hittite theory in "The Hittite Language", *Class. Weekly* 33.134-7. More serious, however, is his study on the fourth laryngeal: "Evidence for Voicing of Indo-Hittite γ", *Language* 16.81-7.

INDIC

Isidor Dyen offers as his Pennsylvania doctoral dissertation a study of *The Sanskrit Indeclinables of the Hindu Grammarians and Lexicographers* (planoprinted), *Language Dissertation No. 31,* published by the Linguistic Society. Our other linguistic contributions deal with the vernacular rather than with the literary language: Sanskrit corayati 'steals' is proposed by L. C. Tihany, *Language* 16.150-3, as the etymon of the Gypsy word from which the Hungarian *csor-* 'steal' is borrowed; L. H. Gray proposes "Fifteen Prākrit-Indo-European Etymologies", in *JAOS* 60.361-9.

GREEK AND LATIN

Two major publications have appeared: E. H. Sturtevant, *The Pronunciation of Greek and Latin* (*William Dwight Whitney Linguistic Series vol. VII;* Baltimore, Linguistic Society of America 1940) and R. G. Kent, *The Sounds of Latin* (second edition, revised, special publication of the Linguistic Society). The former is a complete reworking of Sturtevant's book by the same title published in 1920. This is the fundamental work on the subject, assembling all our evidence of original documents, statements of ancient authors and grammarians, and the linguistic deductions of modern scholarship. The latter work was first published in 1932 and is altered chiefly by four pages of addenda.

The importance of the "laryngeal hypothesis" is further emphasized by Professor Sturtevant in "The Greek Aspirated Perfect", *Language* 16.179-72, where the origin of this peculiar formation is sought by postulating laryngeals in the Indo-Hittite first singular and third plural endings. Likewise touching the laryngeal hypothesis is Sturtevant's latest article "The Greek κ Perfect and Indo-European *-k(o)-*", *Language* 16.273-84, where the [k] of the Grk. ἔθηκα, Lat. *fēci,* etc. and also that of various *-k-* suffixes is derived from the glide developed between Indo-Hittite glottal stops and voiceless velar spirant. The development of determinative compounds from exocentric (bahuvrīhi) not only for Greek but for Indo-European in general is suggested by the article of H. M. Hoenigswald, "Παυ-Compounds in Early Greek", *Language* 16.183-8. Professor Sturtevant produces conclusive evidence that Latin *qu* was a true "labiovelar", not a velar plus a *w* as usually assumed in "The Pronunciation of Latin *qu* and *gu*", *Language* 15.221-23. N. W. DeWitt, "Semantic Notes to Latin Etymologies", *Language* 16.88-94, discusses the semantic development of some moot words with a view to finding a key to their etymologies. On the Italic dialects there is the detailed study of A. C. Moorhouse, "Observations on the Chronology of Sound-Changes in the Italic Dialects", *AJPh.* 61.307-29.

CELTIC

R. A. Fowkes, "The Phonology of Gaulish", *Language* 16.285 attempts a comparative Gaulish phonology on the basis of actual Gaulish materials at hand. The question of substratum in Irish is again briefly opened by W. R. Lansberg, "Evidence of a Mediterranean Substratum in Celtic", *Language* 16.95-8, where some syntactical similarities between Old Irish and Ancient Egyptian are reviewed. Four short notes on Irish are offered by V. Hull: "The Enclitic Emphasizing Pronoun of the Third Person Masculine and Neuter in Archaic Irish", *Language* 16.12-16, on the use of *sa-som* in earliest texts, with "A Further Note on *sa* in Archaic Irish", *Language* 16.340-2; "The Old and Middle Irish Verb, *do · coisig", ibid.* 153-7, a semantic note; "The Future of Old Irish *imm · aig", ibid.* 209-10, presenting a case of tmesis. In British Celtic we have W. B. S. Smith, *De la toponymie bretonne, Language Dissertation No.* 20 (Baltimore, Linguistic Society of America [Language Monograph No. 20] 1940), an important contribution to the etymology of Breton place names, edited after the manuscript of Auguste Brizeau.

GERMANIC

The article by L. H. Strong and N. L. Willey, "Dynamic Consonantal Permutation", *JEGPh.* 39.1-12, is largely a criticism of Prokosch's theory of the Germanic sound shift, which, however, the authors largely misconstrue, as is shown by H. Kurath in his rejoinder "Prokosch's Theory of the Germanic and High German Consonant Shifts: A Reply", *ibid.* 376-82. Prokosch's *Comparative Grammar* (cf. *The American Year Book* for 1939, p. 893) has also occasioned the discussion by D. A. MacKenzie, "Footnote to Prokosch, Comparative Germanic Grammar", *JEGPh.* 39.261-3, a criticism of the derivation of the North and West Germanic preterit of 7th class strong verbs from non-reduplicated forms. Prof. A. M. Sturtevant has continued his Norse grammatical studies: "Analogical Weak Preterit Forms in Old Icelandic", *Language* 16.48-52; "Analogical Formations in Old Norse", *Language* 16.160-1 (genitive singular in *-ss* for *-s* and loss of *j* before *a* in *-jan*-stem nouns); "The Position of the Verb-Adverb Locution with reference to the verb in the Elder Edda", *Scand. Stud. and Notes* 16.1ff., and "Critical Notes on Old Norse Phonology", *Language* 16.344-6. J. M. Echols discusses the Old English origin of the "Old Icelandic *tein-*" as a prefix 'ten', *JEGPh.* 39.184-8. E. H. Sehrt, "The Long Forms of ōn-Verbs in Old Saxon", *Language* 16.99-104, argues that the West Germanic denominative verbs in *-ō-jan* are not parallel to the Greek denominatives in -a-w, etc., but depart from a spread of the subjunctive endings of class 1 weak verbs to class 2.

SLAVIC

A. Issatchenko, "Tense and Auxiliary Verbs with Special Reference to Slavic Languages", *Language* 16.189-98, emphasizes the distinction between verbal and non-verbal languages, *i.e.*, those which retain many verbal categories, simplify their declension, and *vice versa*. C. A. Manning makes a detailed study of Russian aspect in "The Historical Use of the Present Imperfective and the Present Perfective in Russian", *Language* 15.229-34. G. L. Trager describes "the accent and quantity systems of the Serbo-Croatian literary language as they function on the synchronic phonological plane" in "Serbo-Croatian Accents and Quantities", *Language* 16.29-32. In "The Russian Gender Categories", *Language* 16.300-7, Trager initiates a group of studies promised on the noun categories associated with gender in the various Slavic languages.

XXV. LITERATURE AND LANGUAGE

PERIODICAL PUBLICATIONS

American Historical Review
60 Fifth Ave., New York City

American Journal of Philology
Johns Hopkins Press, Baltimore, Md.

American Journal of Semitic Languages and Literatures
5750 Ellis Ave., Chicago.

American Spectator
683 Broadway, New York City.

American Speech
Columbia University Press, New York City.

Atlantic Monthly
8 Arlington Street, Boston.

Celtic Digest
Columbia University, New York City.

Classical Journal
Ann Arbor, Mich.

Classical Philology
5750 Ellis Ave., Chicago.

Classical Weekly
4200 Fifth Ave., Pittsburgh, Pa.

Commonweal (The)
386 Fourth Ave., New York City.

Editor and Publisher
1475 Broadway, New York City.

Germanic Review
Columbia University Press, New York City.

Harper's Magazine
49 East 33d Street, New York City.

Hispanic Review
University of Pennsylvania Press, Philadelphia.

Journal of American History
175 Fifth Ave., New York City.

Journal of English and Germanic Philology
University of Illinois, Urbana, Ill.

Journal of Modern History
5750 Ellis Ave., Chicago.

Lance
2512 East 5th Street, Dayton, O.

Language
University of Pennsylvania, Philadelphia.

Library Journal
62 West 45th Street, New York City.

Library Quarterly
5750 Ellis Ave., Chicago.

Literary America
175 Fifth Ave., New York City.

Literary World
12 Mount Morris Park W., New York City.

Magazine
512 California Bank Building, Beverly Hills, Calif.

Modern Philology
5750 Ellis Ave., Chicago.

New England Quarterly
200 Stevens Hall, Orono, Maine.

North American Review
123 William Street, New York City.

Philological Quarterly
University of Iowa, Iowa City, Ia.

Poetry
232 East Erie Street, Chicago.

Poetry Digest
220 West 42nd Street, New York City.

Poetry Review
570 Lexington Ave., New York City.

Poet's Magazine
101 West 44th Street, New York City.

Romanic Review
Columbia University Press, New York City.

Saturday Review of Literature
420 Madison Ave., New York City.

Scribners-Commentator
654 Madison Ave., New York City.

Studies in Philology
University of North Carolina Press, Chapel Hill, N.C.

Words
808 South Vermont Ave., Los Angeles, Calif.

Yale Literary Magazine
Yale Station, New Haven, Conn.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

American Academy of Arts and Letters, 633 W. 155th St., New York City.

American Academy of Arts and Sciences, 28 Newbury St., Boston, Mass.

American Booksellers Assn., 35 E. 20th St., New York City.

American Council of Learned Societies, 907 Fifteenth St., N.W., Washington, D.C.

American Library Assn., 520 N. Michigan Ave., Chicago, Ill.

American Newspaper Guild, 1560 Broadway, New York City.

American Newspaper Publishers' Assn., 370 Lexington Ave., New York City.

American Philosophical Assn., Brown University, Providence, R.I.

American Philosophical Society, 104 S. Fifth St., Philadelphia, Pa.

American Society of Composers, Authors and Publishers, 30 Rockefeller Plaza, New York City.

American Society of Newspaper Editors, Times-Union Bldg., Rochester, N.Y.

Association of National Advertisers, 330 W. 42nd St., New York City.

Associated Press, 383 Madison Ave., New York City.

Bibliographical Society of America, Grosvenor Library, Buffalo, N.Y.

Book Publishers Bureau, 347 Fifth Ave., New York City.

Foreign Press Publicity Service, 258 Fifth Ave., New York City.

German Club, 5 E. 66th St., New York City.

National Editorial Assn., 134 N. La Salle St., Chicago, Ill.

National Institute of Arts and Letters, 633 W. 155th St., New York City.

National Publishers' Assn., 232 Madison Ave., New York City.

Newspaper Advertising Executives Assn., 1708 Mariner Tower, Milwaukee, Wis.

United Press Assn., 220 E. 42nd St., New York City.

U. S. Publishers Assn., Inc., 386 Fourth Ave., New York City.

AMERICAN LITERATURE

American Dialect Society, Bascom Hall, Madison, Wis.

Authors Guild, 6 E. 39th St., New York City.

Authors League of America, Inc., 6 E. 39th St., New York City.

Catholic Writers Guild of America, 128 W. 71st St., New York City.

National Assn. for American Speech, 174 W. 76th St., New York City.

Simplified Spelling Board, Lake Placid Club, Essex County, N.Y.

Walt Whitman Society of America, 377 Anchor Ave., Oceanside, L.I., N.Y.

LANGUAGE AND LITERATURE

American Classical League, New York University, Washington Sq. East, New York City.

American Oriental Society, Trinity College, Hartford, Conn.

American Philological Assn., Swarthmore College, Swarthmore, Pa.

Dante Alighieri Society of New York, 626 Fifth Ave., New York City.

Dickens American Fellowship, 280 Madison Ave., New York City.

Modern Language Assn. of America, 100 Washington Sq. E., New York City.

DIVISION XXVI

THE ARTS

ARCHAEOLOGY

By Donald F. Brown

Institute of Fine Arts, New York University

The spread of the European conflict has had the inevitable effect of sharply limiting archaeological activity abroad. A few excavations were carried on during the early part of the year, however, while the Mediterranean area was still more or less open.

GREECE

Dr. T. Leslie Shear of the American School in Athens and Princeton University reports that the American excavations in Athens produced material from the Mycenaean to the Hellenistic period. Of especial interest were ostraka bearing the names of Pericles, Alcibiades, and other famous fifth century B.C. men. A fine Hellenistic statuette preserving a considerable amount of its original painted decoration was found in a well. These excavations will not be reopened until the end of the war. Meanwhile all possible precautions have been taken to ensure the safety of objects and records left in Athens.

The New York University expedition to Samothrace, under the direction of Dr. Karl Lehmann-Hartleben, was not reopened in 1940. The expedition members spent the year working on material found during the season of 1939.

SYRIA

Dr. C. W. McEwan, sponsored by the Oriental Institute of Chicago, led the Theodore Marriner Memorial Expedition to Tell Fakkariyeh where a Mitanni site is being investigated. Already an unbroken history from the Roman period to about 1500 B.C. has been discovered, and important information is expected to be recovered concerning the diplomatic relations between Egyptians, Hittites, and Hurrians.

The American Schools of Oriental Research are conducting a prehistoric survey of northern Syria and Iraq. The results of this survey will both orientate future excavation and give valuable information concerning the movements of peoples in this important area.

PALESTINE

Dr. Nelson Glueck, sponsored by the American Schools of Oriental Research, had a brief season at Ezion-Geber, the port of Solomon on the Red Sea. Interesting finds concerning the economic structures of the early Hebrew kingdom have been made.

The Hebrew University, using in part funds from the United States, is digging at Napoleon's Hill, Tell Jerisheh, under the direction of Dr. Sukenik who reports a culture dating back to 3000 B.C.

EGYPT

The Boston Museum of Fine Arts has a small party at Gizeh where the excavations are now in their 35th year. No information is available concerning their activity. Of general interest are the French finds made by Dr. Montet of XXI Dynasty tombs at Tanis, notably the tomb of Amenemopet, son of Psousennes II.

IRAN

The Metropolitan Museum of Art sponsored an expedition again to Nishapur where extremely important ceramic finds have been made.

MEXICO

M. W. Stirling, heading an expedition under the joint auspices of the Smithsonian Institution and the National Geographic Society, continued the work which was started in 1938 in southern Veracruz. Excavations were made at Tres Zapotes, Cerro de Mesa, and in the Tabascan site of La Venta. All three sites produced examples of the peculiar giant stone heads found in 1939 at Tres Zapotes and other interesting Olmec sculptures. Burial caches are defining cultural horizons and making of Tres Zapotes an important key site for chronology. La Venta's central feature is a huge pyramidal earth mound which is set on an enormous rectangular base. In close proximity to this mound is an interesting stockade-like structure of close-set stone columns.

The Carnegie Institution is sponsoring an archaeological survey in Yucatan. H. E. D. Pollock and E. M. Shook are in charge of this work. The same institution is excavating several mounds in San Augustin Acasaguastlan. A. L. Smith, who is conducting the work, has reported the discovery, among other things, of two roughly-vaulted tombs and a multi-chambered temple structure.

HONDURAS

The Carnegie Institution is continuing its work of excavation and reconstruction on the acropolis at Copan. T. A. Morde of New Bedford, Mass. has reported the discovery of a great stone-walled city in the Mosquitan territory. A large expedition is expected to proceed to the site early in 1941.

EL SALVADOR

The Middle American Research Institute of Tulane University, in cooperation with the Carnegie Institution, is conducting an excavation under the leadership of J. W. Dimick of a Pre-Columbian site near the capital. The site, some six miles square, contains over 100 pyramids of adobe blocks. The artifacts from the sites show traces of Mayan, Toltec, and Oaxacan influence.

PANAMA

The University Museum of the University of Pennsylvania has continued work at Sitio Conte, Cocle Province. Some 30 graves have been excavated, and the material, consisting of a quantity of golden ornaments and three tons of pottery, has been brought to Philadelphia. This site was excavated, in part, by the Peabody Museum of Boston in 1933. Of great interest in 1940 was the discovery of a chieftain's burial, dating 1300-1500 A.D., containing the immolated retinue.

COLOMBIA

A new site covering approximately 40 acres has been found near Pitalito by workmen. Hundreds of over life-size stone idols have been reported.

ECUADOR

The National Academy of History of Ecuador, together with the School of American Research and the University of Southern California, has undertaken the support of a reconnaissance expedition by J. M. Corbett and E. N. Ferndon, Jr. Mapping, the collection of surface finds, and a few sondages are to be the main activities of the group. A complete archaeological map of the country is to be the result.

UNITED STATES

There has been a great deal of activity and interest in the archaeologically productive areas of this country. Tightness of funds however have made those activities a little less than in 1939.

New York.—The Hudson Valley Archaeological Survey ended its second season in August. Several lower Hudson sites were investigated and a certain amount of far-northern Eskimo influence revealed in the pre-

European strata. Twenty-three campsites were excavated, the most important being the famous Danskammer area in Orange County. The Rochester Museum excavated over 65 Indian burials on Frontenac Island in Cayuga Lake.

New Jersey.—Several coastal sites and also a marsh-site near the Abbott farm have been dug by Dr. Nathaniel Knowles of the W.P.A. Indian site survey.

Virginia.—The ecology of Tidewater Algonkian pottery, with special emphasis on the Pamunkey types, has been the subject of intensive research by Dr. Frank G. Speck and Ted Stern of the University of Pennsylvania. Dr. T. D. Stewart of the Smithsonian Institution has continued his study and systematic investigation of the famous stockaded village of Patawomeke which Capt. John Smith visited in 1608 and in which Pocahontas lived. Several large ossuaries have been exposed, and a new type of shell-tempered pottery decorated with basketry impressions and line decorations has been found.

Kentucky.—The University of Kentucky, in collaboration with the W.P.A., is conducting an archaeological survey. A number of mounds have been dug and a model excavation performed upon one of the largest.

Florida.—Columbia University of New York and the National Park Service has carried on a survey of the state in which 70 sites have been located and six stratigraphical digs made.

Northern Mississippi Area.—Innumerable local excavations carry on the important task of clarifying the archaeology of Illinois, Ohio, and Missouri. Nomadic artifacts are the chief finds. A very important site of a nomadic tribe village has been found near Festus, Mo. by R. M. Adams. Evidence for thatch-roofed huts has been revealed here.

Oklahoma.—Indian remains in the path of the Grand River Dam are being examined by Dr. F. E. Clement of the University of Oklahoma. Considerable evidence of trade with the Gulf of Mexico area has been unearthed.

Kansas.—The Smithsonian Institution, represented by Dr. W. R. Wedel, continues its program, started in 1937, for determining the pre-historic cultures. At a Quiviran site in northeast Rice County, chain-mail was found similar to that discovered earlier at the Lindsborg site. This is probably of Spanish origin and the question is posed whether it arrived by trade or by actual contact.

Colorado.—F. H. H. Roberts has completed his fifth year at the Lindenmeier site where studies concerning Folsom Man are being made. It is hoped that some skeletal remains of this Man will be found and at least some idea of his physical appearance thus made possible. In the Yampa River Canyon, M. C. Scoggins of the University of Colorado Museum is excavating a cave where a cultural horizon has been found parallel to the Basket-Maker II of the San Juan basin. C. T. Hunt of the Museum of Western State College is examining a basket-maker site in the Taheguache cave.

New Mexico.—Dr. F. C. Hibben of the University of New Mexico is actively pursuing the search for artifacts and skeletal remains of the pre-Folsom Man, named Sandia Man from his Sandia mountain habitat. The discovery of the implements used by this Man considerably below Folsom-Man levels has pushed back the American horizon for man to before 20,000 B.C. The School of American Research and the University of New Mexico are continuing their work at Pecos Pueblo and Mission, and also at Quarai Mission. This involves both excavation and restoration. Mrs. D. S. Keur of Hunter College, New York, has put in a second season on Navajo sites near Albuquerque. Some 95 house sites were uncovered and dated by dendrochronology to 1725-1825. The pottery showed marked Pueblo influence. Of general interest is the dedication of a fine new museum, the Coronado National Museum at Bernalillo, as part of the celebration for the 400th anniversary of Coronado's explorations in the American Southwest.

Arizona.—The Pueblo Grande Laboratory has completed a stratigraphic survey of the Salt River Valley in order to establish the chronology of Hohokam sites and canals. The investigations of over 100 sites, coupled with 44 stratigraphic tests, have shown that the occupation of the valley lasted from 500 A.D. to 1400 A.D. Over 1255 miles of canal were built during this period. After 1200 A.D. water logging became a serious problem, and finally marauding tribes drove away the Hohokam people. This work is part of a state-wide W.P.A. archaeological program. Dr. Emil Haury has studied Mogollan cultures near Forestdale for the University of Arizona. A great kiva of Pueblo III period has been found, as well as Basket-maker pit-houses. Due to an unpremeditated exploratory trip made by Dr. William Gardner of New York City, a mass of fossilized camel tracks has come to light in the valley of the Pueblo Colorado River. They have been dated in the Pleistocene age by Dr. Simpson of the American Museum of Natural History.

Wyoming.—Dr. E. R. Reynaud of the University of Denver has made an archaeological survey of the High Plains. Seven hundred crude stone tools have been found similar to those of Europe's Old Stone Age. However no chronological evidence has yet been found.

Texas.—Dr. R. Brown of the American Museum of Natural History and the Sinclair expedition have undertaken a new dinosaur hunt in the Big Bend area where bones were discovered in the summer by Dr. E. Schlaikjer. These indicate a creature larger than the brontosaurus existing in the Jurassic Age. A step has been taken to systematize the archaeological investigations of the state by the formation of the Council of Texas Archaeologists which will serve as a clearing house for information and as an agent for producing uniform techniques and procedures.

Pacific Coast.—There has been little activity of any importance except the completion of a systematic survey of Oregon's Great Basin area undertaken by the University of Oregon. Evidence has been found to relate early man with extinct horse, camel, bison, and other mammals.

Arctic.—Dr. F. C. Rainey of the University of Alaska has excavated an old Eskimo site at *Ipiutak*. Twenty-three houses were uncovered and a large number of artifacts collected.

AWARDS

The Franklin L. Burr prize of $1,000 was awarded by the National Geographic Society to M. W. Stirling of Washington, D.C. for his outstanding work in the field of archaeology. Mr. Stirling's prize was for his discovery in 1939 in the State of Vera Cruz, Mexico of monuments bearing the earliest recorded date yet found in the New World—291 B.C.

PAINTING

By Florence Seville Berryman

The American Federation of Arts

GENERAL

Painting, like other cultural activities, was in eclipse during 1940, but was by no means dormant. The United States Government continued to patronize painters on a nation-wide scale. Encores of the World's Fairs in New York and San Francisco included new exhibitions and opportunities for painters, although the impact was inevitably much less than in the opening year.

SECTION OF FINE ARTS

The Public Buildings Administration Section of Fine Arts reported 237 contracts for mural and sculpture decorations completed in the calendar year, with a total expenditure to the artists of $266,381.50. Between 75 and 80 per cent of such contracts each year are for murals. The more detailed report issued by the Section at the end of the fiscal year (June 30) revealed that 54 competitions had been held since July 1, 1939; 2,039 artists had competed, submitting 6,376 sketches; and 252 artists' contracts had been completed, making a total of 812 since the Section was started in October, 1934. The total amount expended on these contracts was $1,059,259.77, in return for which 1,066 Federal buildings had been or were being decorated in 1,019 cities.

Among the most interesting of the Section's activities during 1940 was the competition conducted for the United States Maritime Commission, for decorations for the President passenger cargo vessels—*Jackson, Monroe, Hayes, Garfield, Adams,* and *Van Buren.* Of 485 artists who entered the competition, submitting 1,748 designs, 19 received 27 contracts.

Another Section competition, to which American artists were invited to submit watercolors from which 300 items would be selected at a uniform price of $30, to be given to a Government leper hospital, fetched 10,000 entries. Another selection of more than 300 watercolors from this competition was shown in the Section's galleries in Washington, during National Art Week.

Perhaps the most important single contract completed and installed during the year was the series of 20 large murals on the theme "Struggle for Justice" by Maurice Sterne for the library of the Department of Justice building in Washington. They were exhibited the end of 1939 at the Fine Arts Gallery, New York City, for the benefit of the New School for Social Research.

NATIONAL ART WEEK

The President designated the week of Nov. 25-Dec. 1 as National Art Week. In a letter inviting Francis Henry Taylor, director of the Metropolitan Museum of Art, to serve as chairman of a National Council, the President said "we must find ways of translating our interest in American creative expression into an active popular support expressed in terms of purchase." "American Art for Every American Home" was the slogan.

This largest art fair ever held in the world's history was officially opened in the Departmental Auditorium, Washington, D.C. which contained more than 1,000 works of art. It was but one of 1,500 sales exhibitions in more than 500 towns and cities in every state, from New York City which had 60, to Los Angeles with 68, and also in Puerto Rico and Hawaii. Approximately 125,000 paintings and other works of art by 28,000 living American artists and craftsmen were shown; 6,000 public spirited persons labored *con amore* on 463 local committees; 779 art organizations participated, and 4,277 merchants cooperated. It was estimated that 20,000,000 persons visited the exhibitions. Total sales had not been announced by the end of the year.

FEDERAL ART PROJECT, W.P.A.

New York Library Murals.—The Works Projects Administration, through its State Federal Art Projects, acted as a service agency for the state and local committees which made National Art Week possible. Perhaps the most coveted Federal Art Project commission available was for the decoration of spaces on the third floor, main building of the New York Public Library. Edward Laning, who won the award in 1938, painted a series of murals entitled "The Story of the Recorded Word," composed of four panels and two lunettes, which were installed in April. The panel depicting Gutenberg and his press and the Elector of Mainz is the most beautiful section of the series.

Trouble in New York.—The Federal Art Project, from its inauguration, has been beset with many difficulties due to the fact that its emphasis is on relief rather than quality. New York was the scene of the F.A.P.'s chief troubles during 1940. The Project in the metropolis had previously been charged with political favoritism and administrative incompetence, and has further been harassed by high-pressure labor unions.

Henkel Episode.—During the summer criticism was extended with the charge of "foreign 'ism' propaganda" with specific reference to a series of panels painted by August Henkel for the administration building at Floyd Bennett Air Field. By order of Col. Brehon Somervell, W.P.A. Administrator in New York City, these panels were destroyed because of their obvious Communist propaganda and their poor aesthetic quality. The artist, before going on the W.P.A. pay roll for four years (thus obtaining a total salary of approximately $5,000.), had been a Communist candidate for Congress.

W.P.A. Art in New York.—Colonel Somervell subsequently ordered an investigation of the Project's 1,000 workers in New York City. In an effort to "raise the cultural level of Project art," he set up an advisory committee of 40 established artists to ascertain whether the artistic ability of New York's W.P.A. artists warranted their continuance on its payroll. At the first meeting of a subunit of the committee, three-fifths of the inspected work was rejected as amateurish and incompetent. Despite the fact that it had been planned to keep the identity of committee members and submitting artists anonymous, United American Artists (the union) obtained the committee roster (presumably through its members) and began to circularize and telephone the artists serving on it. The Union was subsequently accused of attempting to control the Federal Art Project by "mudslinging, threats and distortion of facts." However, the artists who resigned were very soon replaced by others just as prominent and able.

ART AT THE GOLDEN GATE EXPOSITION

The Golden Gate Exposition at San Francisco again outstripped the New York World's Fair in the art sections in 1940. An exceptionally interesting feature of the former was "Art in Action" by more than 60 artists who contributed their services, working in their various media in view of the public. Diego Rivera, Mexican muralist, established on a high scaffold, painted a mammoth fresco 20-by-40 feet which will eventually be installed in San Francisco's new Junior College (still to be built.) Other artists painted easel paintings, carved wood, modelled or chiselled, made prints, etc.

Other sections in the Fine Arts Palace included "Art in Use," a series of interior units with paintings on the walls as decorative accessories; "California's Own Art Seen in Retrospect," a collection of less than 100 paintings representing the period 1850-1915, in which the state's artists had expressed their reactions to the new country; "Art South of the Border," comprising 75 paintings from Chile, Peru, Ecuador, Colombia, Costa Rica, and El Salvador, and a separate Mexican exhibition of nearly 200 paintings and other works by 59 younger artists; American painting, a group of 300 oils of all schools and styles of contemporary United States painting, as well as American paintings of the recent past.

Every major trend in European and American painting since mediaeval times was represented in the Old Master exhibition again assembled by Dr. Walter Heil who obtained the majority of works from American public and private collections. The display was more varied and comprehensive than that of 1939. The 1940 edition included Italians (Venetians, Florentine High Renaissance, and Baroque), Flemish of 15th and 17th centuries, a German group (missing in 1939), Spanish and Dutch, French and English of the 18th century, and an unusually fine collection of 80 paintings of the 19th century French. Of thousands of visitors to the Fine Arts Palace who were polled in a "popularity vote," one-third gave first place to this Old Master exhibition, and a majority voted for El Greco's "Penitent St. Peter" as the favorite painting, which was subsequently purchased by the San Diego Museum.

NEW YORK WORLD'S FAIR

The Masterpieces of Art Building again was filled with nearly 400 paintings representing four centuries (1500 to 1900) in Italy, France, Low Countries, Spain, Great Britain, and United States. Only nine works were in the 1939 show, and the great majority were from American collections, 38 public, more than 100 private. The absence of the splendid early Italians and other primitives of the 1939 exhibition was compensated for by the superb representation of 19th century French. The French genius was the dominant motif in the 1940 show which, in its entirety, was valued at more than $30,000,000. Fair visitors voted again this year for "Master Simpson" by Arthur William Devis, as the most popular work. At the end of the Fair, the excellent modern fireproof building, designed by the firm of Harrison & Fouilhoux, architects, which cost $300,000 and housed both Masterpieces of Art exhibitions, was presented to the City of New York for a permanent art gallery by its sponsors, Art Associates, Inc.

"Living American Art," housed in the American Art Today building, was a better exhibition than that of 1939. Operated under the New York City W.P.A. Art Project, it was actually not one show, but many. The W.P.A. show was changed completely several times during the period of the Fair, with a total of more than 3,000 works shown. In addition to the Government art, there were exhibitions by national and local professional artists' organizations in a block of galleries assigned to them, which changed approximately every three weeks. Among the 16-group guest exhibitors were the Allied Artists of America and New York Watercolor Club, N.Y. chapter, American Artists' Professional League, American Abstract Artists, National Academy and American Watercolor Society, National Society of Mural Painters, Mural Artists' Guild, National Association of Women Painters and Sculptors, N.Y. Society of Women Artists, United American Artists, and Harlem Artists Guild.

International Business Machines Corporation had two large exhibitions of paintings installed in its buildings at the New York and San Francisco Fairs. Thomas J. Watson, president of I.B.M., purchased 106 paintings by living American artists, two from each state and possession, selected by local art juries who considered them representative of the art and character of the respective place. An unusual situation was revealed in connection with the New York show, when a tabulation of the popular vote cast all summer, gave the popular prize of $200 to Kenneth Adams' "Benerisa Tafoya," which had also received the first prize of $1,000 from a professional jury. Popular and professional choices are rarely the same. It was further announced that the I.B.M. New York show had drawn 3,000,000 visitors, or 16 per cent of the total attendance at the Fair.

Foreign pavilions at the New York Fair reflected the war. The French Pavilion had the largest exhibition, modern French paintings by outstanding contemporaries, and also "Five Centuries of French History in French Art" in connection with its series of period interiors (same as 1939). The Italian Pavilion also retained its 1939 exhibition of modern painting; Great Britain had nothing. The Polish Pavilion had a show of contemporary paintings and old masters from collections of Polish residents of the United States. A few other foreign pavilions had small exhibitions.

The New York World's Fair early in 1940 purchased works by 31 living American artists from the contemporary art show of 1939 and donated these works to museums and art galleries throughout the country. They included ten oil paintings, three watercolors, and 18 works in other media.

ART AND THE WAR

A thumbnail history of the war in 1940 could be written in terms of painting. The Finns were the beneficiaries of a "Blind Auction" Jan. 22-Feb. 3 held at Gotham Hotel branch of the Grand Central Art Galleries. The sum of $12,558 was raised from the sale of 249 oils and watercolors contributed by 245 American painters; all expenses were underwritten by 19 art dealers, so that every penny paid for the paintings went to the Finns. There were 721 bids for the paintings, only three of which had no bids. Also in January, a benefit auction at Knoedler's in New York City received a donation of 14 watercolors from Ben Silbert, a Finnish painter, which netted $3,315 for the Finnish Fund.

In February, an Art Auction Dinner sponsored by the American Committee for Christian Refugees and the Jewish Joint Distribution Committee to raise funds for European refugees, raised approximately $17,000. Many kinds of donations included old master paintings and portrait commissions by living painters.

In March, for the benefit of the Polish Refugee Relief Fund, Princess Gourielli-Tchkonia (Helena Rubinstein) held in Washington, D.C. a large exhibition of 135 paintings and other items by modern French artists from her own collection. The display opened March 4 to celebrate the birthday of the Polish-American patriot, General Pulaski, and contributions went to the American Red Cross.

In April, the American Artists Congress had a stormy convention after its executive committee supported the Russian invasions of Finland and Poland. A majority of its members labeled it a "Communist front." Lewis Mumford, Dr. Meyer Shapiro of Columbia University, and George Biddle, noted painter, resigned with strong statements, Mr. Biddle saying that he regarded "with the deepest suspicion and scorn . . . organizations which condemn the dictatorships of Germany and Italy and are unwilling to include the dictatorship of Russia in their resolutions of condemnation." Among the many artists who resigned (one group of 17 seceded in a body) were such well known painters as Niles Spencer, William Zorach, Ernest Fiene, and Jacob Getlar Smith. These artists formed a new organization, the Federation of Modern Painters and Sculptors, to be non-political and non-academic, with the stated purpose "promotion of the welfare of free progressive artists working in America" and their platform denounced totalitarianism in all forms.

In the autumn, a large collection of more than 500 modern French paintings and drawings was seized from the American Export Liner *Excalibur* by the British censors at Bermuda, on suspicion that it was being sent to the United States to raise foreign exchange for Germany. It had been consigned by a French art dealer, Martin Fabiani, in Lisbon, to the Bignou Gallery, New York, which disclaimed knowledge of it. Prize proceedings to condemn the collection were begun in Bermuda, but toward the end of the year, the collection was sent to Ottawa.

The magnificent exhibition of Italian Old Masters lent by the Italian Government to the 1939 Golden Gate Exposition, which created so much goodwill for Italy throughout the United States in 1939-40, sailed on the *Rex* on April 13, less than a week after it closed at the Museum of Modern Art, New York where it broke all attendance records with 290,888 persons. Titian's magnificent portrait of Pope Paul III received the highest popular vote.

Dr. Walter Heil, director of the De Young Memorial Museum, San Francisco, who secured the Italian loan in 1939, achieved another "tour de force" the end of 1940, when perhaps the greatest French painting exhibition ever assembled, opened at that Museum Nov. 15 for a showing of two months. It comprises 180 paintings from the French Revolution to the present, lent by 20 French museums led by the Louvre, which the Daladier Government sent to South America. In view of the German occupation of France, this collection is expected to remain indefinitely.

PAINTING AND THE "GOOD NEIGHBOR" POLICY

A large amount of art from Latin America was shown in the United States during 1940, in addition to the exhibitions in the two World's Fairs. A comprehensive exhibition of the art of Argentina, including 236 paintings, prints, and sculpture by 76 living artists, opened Jan. 18 at the Virginia Museum of Fine Arts, Richmond. A selection of 30 oils and 35 other works was made, with the cooperation of the Argentine Government, by The American Federation of Arts, and is being circulated throughout the United States during 1940-41.

"Twenty-Centuries of Mexican Art" at the Museum of Modern Art was the summer's outstanding exhibition outside the World's Fair grounds. Made possible by generous loans from the national museums of Mexico, as well as from public and private collections in the United States, the exhibition included works in many media with large groups of 19th and 20th century paintings. A feature of the show was the execution by José Clemente Orozco of a portable fresco mural on six plaster panels 3 x 9 feet, comprising an abstract interpretation of a dive bomber and tank. It was completed in four weeks and weighs 1½ tons.

A Latin American exhibition, opened at the Riverside Museum, New York the end of July, running to Oct. 20, included 209 oil paintings and other works representing Mexico, Ecuador, Venezuela, and Brazil. It was the first large display from Venezuela. The Brazilian section was practically a one-man show of the painter Candido Portinari who had done the mural in the Brazilian pavilion at the New York Fair. He also had a one-man show in Detroit in September, which went on to the Museum of Modern Art, New York City, in October.

Ricardo Gomez Campuzano, Colombian painter, came to the United States in the autumn, commissioned by the president of his nation to study American museums and art schools for the Colombian Ministry of Education. He brought a collection of his own paintings, exhibited at Kleemann Galleries New York City, in November, and plans to assemble an exhibition of American paintings to take back to Colombia for display there and perhaps elsewhere in South America.

James N. Rosenberg, New York lawyer, purchased and presented Paul Meltsner's lifesize portrait of Martha Graham, dancer, to the National Museum of Argentina at Buenos Aires, as a good will gesture.

WIDENER COLLECTION OF THE NATIONAL GALLERY

The renowned Widener Collection in Philadelphia, it was announced by P. A. B. Widener 2nd on Oct. 17, will eventually go to the new National Gallery of Art in Washington. The gift includes more than 100 splendid paintings as well as Renaissance sculptures, porcelains of various periods, jewels and crystals, and the famous Mazarin tapestry. The collection, housed at Lynnewood Hall, Elkins Park, is valued at from $12,000,000 to $50,000,000. It comprises 13 Rembrandts, among them "The Mill" purchased for $500,000 and called by the late Dr. Wilhelm Bode "the greatest painting by any artist;" an excellent group of 18th century British portraits, great Spaniards, Flemish and Dutch, and a few 19th century French. Several rare Vermeers include "The Woman Weighing Pearls;" nine Van Dycks include the superb Venetian portraits; and among the Italian Renaissance gems are Raphael's small "Cowper Madonna" and Bellini's "Feast of the Gods." Mr. Widener wrote that the gift "signifies the end of private collections in the grand style. The days of America's privately owned treasure houses are over."

THE NATIONAL GALLERY

The National Gallery announced in February that a special section devoted to American art had its inception on Feb. 22 with a gift from the Mellon Educational and Charitable Trust, comprising 11 famous portraits by early Americans, including Edward Savage's "Washington Family," five works by Gilbert Stuart, and others by Copley, West, Trumbull, Harding, and Mather Brown. These are in addition to the 111 paintings and other objects presented by Andrew Mellon in 1937, and to the collection of 375 Italian paintings and 18 sculptures from Samuel H. Kress in 1939.

GIFTS AND BEQUESTS

The Dumbarton Oaks Research Library and Collection, containing some masterpieces of painting assembled by Robert Woods Bliss of Washington, D.C., was given to the public. In an announcement Nov. 2, the administration of and title to the gift will belong to Harvard University. The Library covers the mediaeval and Byzantine periods. The Boston Museum of Fine Arts received 54 paintings, mostly the work of French Impressionists, in memory of Juliana Cheney Edwards. A comprehensive collection of 50 paintings from Fra Angelico to Childe Hassam, and other works of art, were bequeathed to the Worcester (Mass.) Art Museum by the late Mary Ellis.

The Wichita (Kansas) Museum was formally presented in October with a collection of 16 paintings by Americans, purchased during the last two years with funds from the trust established by the late Louise Caldwell Murdock to "provide a worthy collection of American art." The trust was established in 1915 as a memorial to Mrs. Murdock's husband, Roland P. Murdock, with the stipulation that the city should provide suitable housing.

To the permanent collection of the Museum of Modern Art, New York City, 11 paintings were added by gift and purchase, the majority through the Mrs. John D. Rockefeller Fund.

The California Palace of the Legion of Honor, San Francisco, received a gift from H. K. S. Williams of 72 oil paintings which, with earlier gifts, constitute a memorial to the late Mildred Anna Williams. They cover 18th century Venetians, a few Flemish and Dutch, British portraits, and the French Barbizon School.

The University of Southern California in Los Angeles opened the Elizabeth Holmes Fisher Art Gallery given by Mrs. Walter Harrison Fisher to house her collection of 29 old master paintings also presented to the University. It includes works by Flemish, Dutch, French and English masters, representing 300 years of painting, beginning with Van Dyck.

PAINTING AND BIG BUSINESS

Private industry also afforded American painters a number of interesting opportunities. The luxurious new S.S. *America* has in its modern interiors paintings and sculptures by 19 artists, including murals in nearly all the public rooms and in many cabins. Pierre Bourdelle painted 19 panels for the main dining room; Charles Baskerville decorated the principal lounge, Griffith Bailey Coale created a history of ships in the writing room, Andre Durenceau decorated the grand ballroom, Constantin Alajalov the cocktail lounge, and Barry Faulkner executed a marine map in the smoking room.

An outstanding commission was Walter Wanger's invitation to nine contemporary painters to come to Hollywood, where Eugene O'Neill's "The Long Voyage Home" was being filmed early in the summer, and paint a portrait or episode inspired by the picture. Mr. Wanger is an independent producer for United Artists and is president of the Academy of Motion Picture Arts and Sciences. The painters were Thomas Benton, George Biddle, James Chapin, Ernest Fiene, Robert Philipp, Luis Quintanilla, Georges Schreiber, Raphael Soyer, and Grant Wood; each had his own studio "on location" and was free to choose his subject. Biddle, Fiene, Philipp and Schreiber painted portraits; Quintanilla chose dancing girls, Chapin a death scene and the others different episodes. The Paintings were shown in New York in August and September, then started on a tour of more than 20 museums throughout the country, each of which will have the show for three weeks.

EXHIBITIONS

Pittsburgh.—In addition to the many exhibitions already mentioned in connection with the World's Fairs, National Art Week, the "Good Neighbor Policy," etc. there were literally thousands of exhibitions of painting held in the United States, from single-painting displays to great internationals. The Carnegie Institute, Pittsburgh, had to give up its annual international of contemporary painting for the second time in 44 years because of war in Europe, and presented instead a Survey of American Painting (October to mid-December) with 246 paintings in the retrospective section, 121 in the contemporary, covering 270 years of history and personalities—a superb exhibition.

The Virginia Museum, Richmond, held its second Biennial of Contemporary American Paintings in March and April. Although young, this exhibition is already of great importance, and differs from others in that the jury recommends 10 paintings for purchase consideration by the Museum Accessions Committee, instead of merely awarding prizes, no matter how generous their sums. The Virginia Museum purchased four paintings from this show.

Annual Exhibits.—The Pennsylvania Academy's 135th annual displayed a tendency toward cheerful subject matter; The National Academy's 114th annual featured work as usual, traditional in type and technically competent; the Art Institute of Chicago had 237 paintings in its 51st annual, and a new award, the Ada S. Garrett $750 top prize in a total of $2,500 prize awards. The Institute held its 19th International Watercolor Exhibition in the spring with 20 nations represented by 532 items: Austria, Belgium, Canada, China, Czecho-Slovakia, England, France, Germany, Holland, Italy, Norway, Poland, Rumania, Russia, Spain, Sweden, and Switzerland, as well as Latin American nations, and the United States. The Nebraska Art Association celebrated its golden jubilee in March, with an exhibition of 72 contemporary American oil paintings; from this annual, the University of Nebraska has bought several thousand dollars worth each year since 1928. The Whitney Museum of American Art, New York City, held its 1940 annual in January and February, considered better than previous shows, and before the end of the year opened its 1940-41 annual of American Painting, the largest of the kind in the Museum's history, with 164 exhibits, and said also to be the best.

Old Masters.—The "greatest show of old and modern masterpieces of painting ever held on the west coast" —250 paintings from Bellini to Lucioni, valued at $6,000,000, was hung in two sections in San Francisco early in the year, at the California Palace and the De Young Memorial Museum; and Newark, (N.J.) Museum had "the greatest old-master show of its history" in October. Both exhibitions had loans from the two World's Fairs of 1939, among other items. An exhibition of the "School of Fontainebleau" organized in Wildenstein's, Paris Gallery, was shipped to the United States just before France fell, and was shown at the firm's New York branch, in November. Venetian Painting from Veneziano to Guardi, covering 400 years, was shown in March at Toledo Musuem; it was assembled by Dr. Hans Tietz, visiting professor at Toledo this year, and was said to surpass all its predecessors in quality.

AUCTION SALES

Parke-Bernet Galleries, New York reported at the end of the season 1939-40 that the war had had little effect; 84 public sales totaled $2,329,-

330.50, very little below the previous season of peace. The high point of bids was the Mrs. Cornelius J. Sullivan sale when Cezanne's portrait of "Mme. Cezanne" fetched $27,500, purchased by Walter P. Chrysler, Jr.; "Mme. Ravoux" by Van Gogh, $19,000; watercolors by Cezanne, Picasso, and Van Gogh averaged $1,500 each, high for this medium. At the Ryan sale, $14,000 paid for a small portrait of Michelle of France by a 15th century Burgundian painter; $16,000 for Andrea Solario's "Portrait of a Young Lady"; $9,900 for Lawrence's "King George IV"; $10,000 for Tiepolo's "Crucifixion". At the Untermyer sale, Rubens' "Feast of the River Gods" fetched $18,000 and a Whistler Nocturne, $7,000.

At the beginning of the 1940-41 season, an unbearded portrait of Abraham Lincoln by Robert Hicks fetched $11,000 at the same Galleries' auction of Mrs. Shipman's collection: the highest price ever paid for a Lincoln. It had been painted from life for an art publisher in the 1860 election campaign.

MUSEUM ACCESSIONS

In addition to outstanding gifts and bequests already mentioned, museums and art galleries continued to add paintings of high quality to their collections through purchase. Space limitations preclude a catalogue of these, compiled from museum bulletins. But it was interesting to note that of about 20 paintings which received more than ordinary attention when they entered museums from New York to San Diego, roughly one-half were by Italian Renaissance masters, while the remainder were divided between other schools of old masters.

Many museums constantly add works by contemporary Americans to their collections by purchases from annual exhibitions of painting and similar sources. During the year, the Metropolitan Museum of Art which makes heavy purchases by virtue of its Hearn Fund aroused a great deal of criticism because of the apparently haphazard methods of selection. Of more than 50 oils and watercolors announced at different times during the year as Hearn purchases, a large proportion bestowed high honor on young, untried artists. Critics of *The New York Times* and other papers published lists of between 40 and 50 gifted and established American painters never included in the Hearn Fund purchases, while the Metropolitan acquired three works in a few months from a young, practically unknown woman.

MISCELLANEOUS

Walt Disney's "Fantasia" which inaugurated its run in New York City in November, was greeted by generally enthusiastic commentators, especially in the art world, as a new aesthetic form, combining painting (the best of it abstract) with great music by old master composers interpreted by Leopold Stokowski's orchestra.

The United States Post Office paid tribute to painting in various stamps issued during the year; Stuart, Whistler, and Remington were among the American artists whose portraits were reproduced on stamps. The 15th anniversary of the Pan-American Union April 14 was commemorated by a lavender 3¢ stamp reproducing the three graces from Botticelli's "Primavera".

Grant Wood, with the exhibition in New York in January of his large oil painting of "Parson Weems' Fable", George Washington and the Cherry Tree, inaugurated a plan long discussed here and abroad but not practiced—*i.e.*, when a painting is sold, the artist retains part ownership, so that if it has any future sales, at higher prices, he or his heirs will benefit financially, in contrast to the traditional situation of the artist selling his work for a pittance and seeing it later fetch a small fortune for its owners, on re-sale.

SCULPTURE

By Rose V. S. Berry
Art Critic and Writer

THE GOVERNMENT AND THE ARTIST

Over a period of seven years the Federal Government has put forth an earnest effort to assist the American artist, an effort on behalf of the artist that has never been made before. For the sculptor, it has definitely been unprecedented. The Government has offered the sculptor the chance to place his worthy sculptor-group; projects that included work with the architects; and it has gone into the far-reaching endeavor to find the local man of talent. One might assert without fear of contradiction that 10,000 studios have sprung up in these years which held out hope to the American artist.

In addition to the foregoing activity, the United States has held for two consecutive years two great International Expositions in which the arts constituted one of the greatest collections and received extraordinary acclaim. Carrying the opportunity for sculptors still further, several exhibitions have greatly enhanced the interest in the art and the sculptor, with the result that an appraisal of American sculpture could be made at the end of 1940 that could not have been possible at any previous time.

AMERICAN SCULPTORS AND SCULPTURE ANALYZED

The American sculptors are grouped, generally speaking, in three divisions: conformist, non-conformist, and out-and-out rebel. Each, in his line, may produce excellent sculpture if he is an artist possessed of ideas and imaginative power, and he will find many who sympathize with his statement if it is worthy. Of sculpture in America, something must be said in general since it may not be said of the sculptor in particular. Any large collection of American sculpture will reveal several facts. There are sculptors inclined toward volume in the way of weight and mass; those inclined to the accurate profile, or the silhouette in the round; those inclined to a tricky technic in exploitation of a medium; those inclined to seek new form with the use of geometrical and abstract units in design, which wrought in relief are allied to both painting and sculpture, dependent upon how low or high the relief may be.

That the world grows smaller with the years is manifest in no one thing more than in its art. In the sculptor who clings to bulk, weight, and gigantic volume, the critic sees the monumental sculpture of Egypt; the dawning-of-reason in the large pre-Phidian sculpture; the simplified ugliness of the Easter Island monoliths; and the Mexico-Mayan sculpture, with its semi-savage relationship to the Orient. And, all too often, the sophisticated adaptation offers little beyond the mere borrowing.

The artist who is conscious of the profile, that beauty of line that makes up the silhouette from whatever angle it is seen, has to possess the skill to relate creative sensitivity with his initiatory imagination regardless of the centralized theme, that is, regardless of whether the subject is his own conception or a subject assigned with the commission or a portrait that is to achieve something more than matter-of-fact handling. The outcome, in any instance, may be humdrum or superbly different and purely classical in the hands of the gifted artist and the skilled craftsman.

The sculptor who depends upon the chipping of a granite block, the facet made by the carver's knife, or that lost-line, finger-grooved impressionism in bronze, is leaning upon a weak crutch. The novel effect is soon exhausted, ceasing to be either excellent or interesting. Strangely enough, such devices were never the refuge of the savage artist who, for the last 20 years, has wielded such a great influence upon the sculptors of all nations, because, as has been observed in this article before, savage sculpture was so thoroughly the antithesis of Greek canons of proportion. The primitive man, as sculptor, recognized only one restriction and that was the challenge of his medium. Having accepted it, he was every inch the artist, free to be and capable of being himself.

NEW TALENT AND ART DEVELOPMENT

Judging from the activities of 1940, the Government, the National Sculpture Society, and smaller sculpture groups were in search of new talented members and new associations to further enthusiasm in the art. One or two of these exhibitions were greater in scope, so far as immediate results involving the individual sculptors were concerned, than the large International Exhibitions. Several projects, which began some years ago with the idea of taking years to complete, came out with competitions for additions to their year-by-year development. All of which makes an amazing recital of one-man-shows, retrospective exhibitions, important placements, and commissions assigned.

ONE-MAN SHOWS

Lovet-Lorski included in his exhibition at the Wildenstein Galleries 50 pieces of sculpture. Many examples were in difficult media, among them a Sphinx in granite. Several subjects were rendered in archaic stylization—dancers, roosters, and unexpected subjects. Several portraits offered the sculptor's skill at its best, one of the famous Italian conductor, Toscanini, was outstanding.

Erwin F. Frey included 25 pieces of sculpture in his show given at the Columbus (Ohio) Gallery of Fine Arts. Twenty years in retrospect revealed the sustained sincerity of this sculptor.

Arthur Putnam, whose long illness before he died hampered his brilliant career, was given an important retrospective exhibition at the Palace of the Legion of Honor in San Francisco. Upwards of 100 bronzes were shown. Putnam was akin to the best work of Antoine Baryé, though the American did not know the work of the famous French animalier. The first bronzes of Putnam were cast through the efforts of August Rodin in Paris during the first World War under tremendous difficulties, for the French Government had taken over Rodin's private foundry for military use. The generous French sculptor said of Putnam's casts: "They are the work of a master."

Archipenko, who is prolific in devising new forms and fortunate in the use of new media, for several months carried on two, one-man-shows, one at the Art Alliance in Philadelphia, the other in New Orleans.

Warren Wheelock, whose stylized manner has developed into an individuality that places him among the sculptors who have arrived, held his show at the Robinson Galleries.

Robert Laurent was given a one-man-show by the Corcoran Gallery of Art in Washington, D. C., and it was followed by a one-man-show in the same setting for Alex Miller.

Anita Weschter's 18 pieces of sculpture included most of her work since 1936; five of the titles, in theme and treatment, were devoted to the spirit of martial music.

Henry Kreis.—Another topical one-man-show was that of Henry Kreis, when his whole output was devoted to war and military themes.

Dorothy S. Greenbaum, at the San Francisco Museum of Art, and David Smith, at the Museum of Art, in Saint Paul, Minn., were given one-man-shows.

Other one-man-shows included that of Doris Caesar which made her sixth appearance alone; Eugenis

Gershoy, at the Robinson Gallery; William Steig, at Smith College; Leo Amino at the Montross Gallery; Franc Epping, at the Bonestell Gallery; Cornelia Van A. Chapin at the Whyte Gallery. Other New York exhibitors included: Ahron Ben-Shumel, Georgia Whitman, and Duncan Ferguson. Archipenko, Mahonri Young, and Esther Jackson had one-man-shows in Massachusetts at Springfield and Andover. Hilda Scudder was given an exhibition in New Orleans.

ANNUAL EXHIBITIONS

The Society of Artists, Washington, D. C., at its 49th Annual, gave its first award to Florence Bessom; a second award to Jane G. Love; Honorable Mention to Veronese Beatty.

Wisconsin's 27th Annual, gave its first sculpture award to Alonzo Hauser; its second award to Martha Graham.

Pittsburgh's 30th Annual included 28 sculptures, and it awarded first prize to Janet De Coux, for her group, "Sara and Abraham."

Kansas City's Art Institute awarded its first sculpture prize to Wallace Rosenbauer; the second prize to Vernon T. Carlock.

The National Exhibition of Soap Sculpture awarded three prizes: First award to Bert Sharkey; second award to Vincent De Palma, and third award to Clair Koch.

The Salmagundi Club of New York, founded in 1871, gave its first sculpture prize to Jeno Jusko, its second prize to F. W. Hutchinson.

Hoosier Society of Artists holds its annual exhibition in Chicago, and its sculpture prizes, in the order named, went to: Frances J. Moody, for her "David," Robert Davidson, for his portrait of Dr. Comstock; David Parsons, for his "Opposing Forces: Boxing"; Honorable Mention was given to Warner Williams and Nancy B. Edwards.

Chicago's 51st American Annual, through its Sculpture Jury consisting of John B. Flannagan, Waylande Gregory, and Wheeler Williams, of New York, and its Chicago members, Carl Milles, Emmanuel Viviano, and Warner Williams, awarded their Logan Medal and cash prize to Hannah Small. The Exhibition included 20 pieces of sculpture.

The National Academy gave its first award to Wheeler Williams for his "Black Panther"; second award to Robert C. Koepnick, for "Lysistrata"; and the Watrous Medal was given to A. de Francisci's "Pot of Basil."

The Pennsylvania Academy of Fine Arts, through its Sculpture Jury consisting of Adolph A. Weinman, Harry Rosin, and Heinz Warneke, gave the Widener Medal to Carl L. Schmitz for his relief plaque, "Trade." The Sculptors exhibiting in the Academy show were about equally divided between the classicists and the more daring modernists. Among the former were Edward McCartan, Anthony de Francisci, Paul Manship, Carl A. Heber, Jr., Theodore Barbarossa, and John Angel. Among the modernists were Kenneth Washburn, Henry Kreis, Robert C. Koepnick, and Heinz Warneke.

As with most of the sculpture exhibited in current exhibitions, groups and single subjects were largely related either to the International Expositions or the Federal Projects; in either case they are worthy of mention. Carl L. Schmitz had submitted the model for his plaque "Trade", which had already been installed over an exterior doorway of the Federal Trade Commission Building, in Washington, D. C. Other work for which credit should go to the WPA consisted of "Justice" by Romuld Kraus, "Colonial Postman" by Sidney Waugh, four quarter-sized models from the sculpture groups which had been exhibited in the Garden Court of the Federal Building at the New York World's Fair by Berta Margoulies, Erwin Springweiler, Albert Stewart, and Marion Walton. Other outstanding work at the PAFA show included two figures by Henry Kreis, the "Prodigal Son" by Heinz Warneke, the "Young

Bull" by Charles Rudy, "Europa" by Paul Manship, "Slum Kid" by Maurice Glickman, alabaster head of a Chinese girl by Richard Davis, portrait of Louise Taft Grosvenor by Concetta Scarvaglione, and a notable head of a Finnish Boy by Walter Hancock.

PURCHASES AND PLACEMENTS

Paul Manship's "Hercules Upholding the Heavens" was installed at the Houston Museum of Art.

Augustus Saint-Gaudens' relief portraits of Mr. and Mrs. Wayne MacVeagh were placed in the Corcoran Gallery of Art, Washington, D. C.

Through the Temple Fund, the Pennsylvania Academy of Fine Arts purchased Salvatore F. Bilotti's "Suzanne," and Walter Hancock's "Spiral."

Cyrus E. Dallin has triumphed after a wait of 56 years; his equestrian statue of Paul Revere, which was accepted for the Boston Mall over two generations ago, will finally be installed.

George Grey Barnard's estate, after his numerous bequests are paid, will have enough to execute his 100-foot Peace Monument.

Mrs. John D. Rockefeller presented 34 pieces of sculpture to the Modern Museum of Art. The sculptors represented are Kolbe, Lehmbruck, Marcks, Pompon, Matisse, Manola, Maillol, Despiau, Bourdelle, and Daumier, of the Europeans, and Ferguson, Lachaise, Nakian, and Zorach among the Americans.

Jo Davidson's larger-than-life portrait-statue of Will Rogers will be installed very soon in the Colorado Rogers Memorial.

SCHOLARSHIPS AND HONORS

The Pris de Rome Scholarship was awarded to John Gulias of New York.

Winners of the Guggenheim Fellowships, were Richmond Barthé and John Hovannes of New York, and Harry Wickey of Cornwall-on-Hudson.

The National Academy announces a list of sculptors recently elected full Academicians—Cornelia Van A. Chapin, Donald De Lue, Gertrude Vanderbilt Whitney, New York City; Nathaniel Choate of Phoenixville and Janet De Coux of Sibsonia, Penn.; Herbert Hazeltine of Paris, France. The Spring Academy honored Gertrude Lathrope and Wheeler Williams as full Academicians.

ACTIVITIES AMONG SCULPTURE GROUPS

Social Security Building.—The Federal Government in 1941 will offer painters and sculptors $68,000 in commissions. One of the sculpture projects calls for two large pedestal compositions flanking the entrance of the Social Security Building. The Commissions will pay the artists $8,000. Sculptors to the number of 289 entered the competition. The Jury consisting of Chaim Gross and William McVey of New York, and Ralph Stackpole of San Francisco, will soon select the winners.

The Phillips Samuel Memorial for Fairmount Park, Philadelphia, one of the tremendous projects which will require years for realization, held an international competition for six additional groups in 1940. Thirty foreign sculptors and 215 American sculptors entered the competition. The six commissions were given to Americans—Maurice Sterne, Robert Laurent, J. Wallace Kelly, John B. Flannagan, Hélène Sardeau, and Heinz Warneke. Those sculptors whose work was commended make an interesting group—Carl Milles, Warren Wheelock, Waylande Gregory, Barnett Aitkin, José de Creeft, Hugo Robus, Wharton Esherick, Archipenko, Ben-Shumel, Harry Pool Camden, Marion Walton, Wallace Kelly, and Minna Harkavy.

The Sculptors Guild is an organization which is not so much in opposition to the National Sculpture Society as it is in favor of an independent production among the more daring modernists and their sympathizers. Its exhibition was of real importance and included 85 pieces of sculpture. Among the exhibitors were José de Creeft, Maldarelli, Herbert Ferber, Lu Duble, Polynotes Vagis,

Marion Walton, Vincent Glunky, Franc Epping, Nat Warner, Louise Crosse, Enrico Glizenstein, Minna Harkavy, John Hovannes, Hugo Robus, Adolph Wolff, Slobodkin, Margaret Kane, Engenie Gershoy, Simone B. Boas, Sonia Gordon Brown, Harold Cash, Albino Cavallito, Cornelia Chapin, Robert Cronbach, Richard Davis, Jean De Marco, Hy Freilicher, Maruin Glickman, Aaron J. Goodelman, Dorothea Greenbaum, Genevieve Hamlin, Dina Melicov, David Michnick, Ward Montague, Frances Mallory Morgan, Charles Rudy, Hélène Sardeau, Concetta Scaravaglione, Caesar Stea, Anita Weschler, Warren Wheelock, and Arnold Giessbuhler.

NATIONAL SCULPTURE SOCIETY EXHIBITION

Under its president, Herbert Adams, the National Sculpture Society took over the Whitney Museum for this exhibition, the first given for some years. The Jury appointed consisted of Paul Manship, chairman; Gaetano Cecere, Brenda Putnam, Adolph A. Weinman, Ulric H. Ellerhusen, Wheeler Williams, Lee Lawrie, and Henry Kreis. Among the Society exhibitors were Herbert Adams, Anna Hyatt Huntington, Paul Manship, Karl H. Gruppe, Adolph A. Weinman, Sidney Waugh, Gertrude Vanderbilt Whitney, Ulric Ellerhusen, Boris Lovet-Lorski, Edmund Amateis, Robert Aiken, Edward McCartan, Attilio Piccirilli, Robert Bros, Walter Hancock, Pietro Montano, Madeleine Park, Louis Slobodkin, Saul Baizerman, Marie Craig, John Held, Sylvia Waldo, Joe Taylor, Dan Olney, Charles Hafner, Arthur Lorenzani, Lu Duble, Harry Poole Camden, William G. Congdon, Sylvia Shaw Judson, Wheeler Williams, Carl Schmitz, Marshall Fredericks, Marian Breckenridge, Anthony di Bona, Absetenia St. L. Eberle. The National Sculpture Society did for this exhibition what both it and the National Academy often do, invite non-members to exhibit with them. In this exhibition upwards of 60 sculptor guests took part in the exhibition.

ARCHITECTURE

By Francis P. Sullivan

The American Institute of Architects

GENERAL

As the new vernacular of American architecture becomes more firmly established, and as architects become more proficient and fluent in its use, the quality of our present day design shows a continual and progressive freshness and brilliancy. It is by no means easy to design in this manner.

In spite of all that the more vocal of its advocates have written and said of late years in the attempt to persuade the world (and perhaps themselves) that they were merely following out a process of logical deduction from functional premises, the fact is that the architecture of today is a style like other styles. It has adopted a convention as rigid and not more reasonable than that of the academic school and differs from it mainly in that it has at its disposal an annoyingly meager vocabulary of motives.

But just as noble poetry has been written in Japanese, in spite of the narrow limits of its phonetics, it is possible for the designer of talent to do excellent work within the scope of this convention, and it would, no doubt, be possible for an artist of genius to do great work in it.

NEW FORMS IN RELATION TO URBAN AND SUBURBAN LIFE

One justification for it as an innovation (if any justification were needed for the free choice of the artist) would be the modifications that have taken place in the pattern of American life and particularly of American urban life. New needs have arisen as a result of this modification, and the architects in their search to satisfy these needs have developed new and interesting types of buildings to which new architectural forms seem particularly appropriate.

An example of these modified types is the suburban shop designed for the use of city dwellers but placed in the outskirts of the cities to avoid the congested traffic of the business area. These are of two kinds, one the large self-contained department store, the other the group of small independently operated businesses housed in structures designed as a unit. Both types are provided with ample area for parking cars and with services such as gasoline filling stations and they are planned on a liberal scale which is made possible by the low cost of the land they occupy.

DEPARTMENT STORE TYPES

Among buildings of the first type the five stores erected by the Sears-Roebuck Company from designs by Nimmons, Carr and Wright, in Baltimore, Chicago, Detroit, Los Angeles and Houston are of especial interest. Their great breadth of quiet wall surface, accented with openings, admirably grouped and proportioned, and carefully restrained decoration, give them a dignity of character unusual in commercial buildings but no more than appropriate to the function which retail commerce fulfills in satisfying the needs of the American household.

While this type of shop is of comparatively recent development and hence deserves a special mention, the same interest is to be found in many of the more conventional types of store buildings scattered through the business sections of all our cities, and in many of these modern architecture is seen at its best.

A characteristic particularly noticeable in them is the intelligent and effective use of display signs as an integral element and principal decorative feature of the facade. There are great numbers of these almost equally deserving of comment, and it is only as a typical example of them that the store of Straus and Schram in Chicago, designed by Robert Heller, may be cited.

BEACH CLUBS

Another comparatively new type of building is the Beach Club, which may be considered either as a variation of the conventional country club or as a development of the old-fashioned summer-resort Casino. Designed by Purves, Cope and Stewart as the result of a competition among architects, the new Dunes Club at Narragansett, Rhode Island, seems particularly well adapted to its purpose and its situation, and it is well conceived and practical in its plan.

THE BUS TERMINAL

The shift from long distance transportation by train to transportation by omnibus has produced still another new type of structure—the bus terminal, a building corresponding in part to the railroad station, in part to the Coaching Inn of early Victorian literature.

A number of these buildings have been erected in important cities throughout the country and among them those designed by Wischmeyer, Arrasmith and Elswick of Louisville, Ky. show great originality in treatment and much ingenuity in the accommodations devised for the movement, loading, and unloading of the vehicles.

BROOKLYN PUBLIC LIBRARY AND OTHERS

Among buildings of a public and monumental character perhaps the most striking is the new Brooklyn Public Library, the work of Alfred Morton Githens and Francis Keally, a masterpiece of severity and restraint enriched at the main entrance only with an admirably conceived portal of decorative metal work. Of nearly equal interest, the Louisiana

State Exhibit Building designed by Edward F. Neild, D. A. Somdal, and Edward Neild, Jr., intended for a permanent exhibition of the products and industries of Louisiana, shows a similar power to compose, a similar self control, and a similar use of well-placed accent.

The emphasis that is being laid at the moment upon the important question of national defense and the industrial expansion that must accompany it makes the recent trend of industrial design of exceptional moment. The conspicuous ability as designers displayed in so many fields by the firm of Coolidge, Shepley, Bulfinch and Abbot, is nowhere better seen than in the Riverside Administration Building of the B. and B. Chemical Company, Cambridge, Mass., which is conceived in the best spirit of present day architecture and is expressive and vigorous in mass and in detail.

CHURCHES

Two interesting churches reflect the influence of today's theories of design upon the very citadel of conservatism and ancient tradition—the Church of the Epiphany in New York, designed by Wyeth & King and Eugene W. Mason, and the Mission of St. Peter Claver at Montclair, N.J., planned for the use of a negro congregation by Paul C. Reilly. The effect of the latter building is greatly enhanced by the collaboration of Albert Hoffman, George Kratina and Vincent Pacelli, as painter, sculptor and designer.

COLLEGE BUILDINGS

The college auditorium, built to serve varying and somewhat incongruous purposes, has always presented a difficult problem in planning and design. An unusually brilliant solution of this problem is presented by the auditorium of Connecticut College at New London, designed by Shreve, Lamb and Harmon, and another equally striking and completely different version in the Theater and Arts Center of the University of Wisconsin by Michael M. Hare, Corbett & MacMurray.

RESIDENTIAL ARCHITECTURE

In the field of residential architecture alone does there seem to be any diminution of quality. The continual production of homes large and small of an intimate and charming domestic character and infinite variety of treatment that was one of the most delightful characteristics of American architecture seems for the time to have been halted, and it is difficult to select from among the new buildings seen in the past year any that show very new, very admirable, or very original quality. That this is a temporary phenomenon or that it is caused by some economic or other extraneous cause and not by any lack in the ability or sympathy of our designers, the wealth of excellent work in other fields which has been cited above bears convincing testimony.

MUSIC AND THE OPERA

By Catherine Smith Bailey

Music Critic and Writer

NEW METROPOLITAN FINANCING

In 1940, opera came of age in America. Threatened with a financial crisis which might banish the Metropolitan Opera Company, a great listening, radio public, which throughout the land had become accustomed to listening to the finest operatic performances remaining in the world today, came to the rescue. These men and women contributed $326,936, a tremendous sum, to help save the Metropolitan. And on this great broad base of public interest and enthusiasm, opera may now expect to flourish and grow in this country.

But why has it become necessary for others than the rich stockholders to come to the financial rescue of opera? Profound social and economic changes, the radio, and the great development of musical taste in this nation are contributing factors. The rich can no longer assume the financial burden of the greatest opera house in the world. The opera box no longer carries its former distinction in social prestige and glamour. There now are more urgent places for great fortunes to go. And there now is a new opera public which depends on no social glamour, no society columnists, no snobbery for its maintenance.

When the Metropolitan Opera Association asked for $1,000,000 to purchase the Metropolitan Opera House from the Metropolitan Opera and Real Estate Company, so that it might continue in use as the Association's theatre for the production of music drama, the response bore valid witness to the real interest in opera by the American public. Of course, large sums of money were contributed to the cause of the continuance of opera by men and women within metropolitan New York. Sixty-two per cent of the money given came from the metropolitan area itself. Yet, of the contributors, 74 per cent live elsewhere than in the New York area. These people want good music and good opera. Radio has had an epochal effect on our culture and has brought about a nascent music appreciation and an intelligent culture which surpasses the wildest hopes of two decades ago. The Metropolitan now stands in a new relation and under a new obligation to its public. For, in principle, the public now owns it.

THE MANAGEMENT AND ITS ACCOMPLISHMENTS

Edward Johnson, the director of the Metropolitan Opera Association for five years, has many fine achievements to his credit. Entering his sixth year with the company, with a mounting public interest and support, it may well be expected that he will add to that already impressive list of successes. Through hard years, he has resuscitated the company. He has been practical and clear sighted. In spite of a limited budget, which has automatically precluded novelties, he has managed to freshen his casts with new singers; he has sought out worthwhile masterpieces for revival, restoring to their due places some neglected works. But he has not yet succeeded in doing away with the hackneyed and routine performance which makes many of the presentations a painful contrast, indeed, to the top notch affairs which often come from the same stage and the same company. The enormous cost of stage and orchestral rehearsals, the terms for which are set by the various unions including the musicians, the stage, the electricians and others, is the principal barrier to restudied and freshened performances. But even these difficulties may well be surmounted by the indefatigable Mr. Johnson, a fine musician as well as an active and efficient director.

With the money raised, Metropolitan Opera House was renovated. One tier of boxes has been removed and replaced by a new rank of advantageously placed seats to be sold at reasonable prices. Other renovations in the house itself ran the cost to $75,000. A new curtain cost $15,000. There has always been trouble with light and sound on its stage, for a wing or a border seemed always to obstruct the light, and the acoustics of the stage are such that the orchestra can not be heard beyond the curtain line. In previous years, pianos and harmoniums were used backstage to give the members of the chorus the pitch. Both defects have been remedied. Two movable 30-foot light towers now make effective lighting easy. And the Stevens Institute of Technology carried through some acoustical improvements which make it possible for singers upstage to hear the orchestra and their own voices as well as if they were in a small room.

New policies also prevail. Guest conductors come to enrich the ranks of the resident conductors. Bruno Walter, a great and experienced conductor with opera as well as with orchestras, was signed for the 1940-41 season to rehearse and conduct "Alceste," "Fidelio," "The Bartered Bride," and "Don Giovanni." And Montemezzi has been engaged to conduct his own opera, "The Love of Three Kings."

THE METROPOLITAN OPERATIC SEASON

Probably due to the great success of "Figaro," the outstanding revival of the 1939-40 season, Mr. Johnson chose "La Fille du Régiment" and "Don Pasquale" for "attractive looking shows" to bring a joyous element to a public which he feels needs the psychological relief of lighter and gayer operas in a war torn world.

Able to refurbish scenery and costumes, Mr. Johnson chose to open the season with Verdi's "Masked Ball," setting the opera in its original Verdian location at the Swedish court of Gustavus Adolphus in 1792. In mounting it in its original and sumptuous setting, the director found an opportunity for a completely new scenic effect, gorgeous and impressive. The costumes, now those of gallant courtiers, also added to the magnificence of the scene.

Herbert Graf, stage director whose ideas have vitalized many productions during his five years with the Metropolitan, was given fine scope in the operas announced for revival during the 1940-41 season. "Masked Ball" and "Daughter of the Regiment" have especially challenged his abilities with brilliant and sumptuous displays, while "Alceste" demanded a simple, heroic style. The revival of "Figaro," Feb. 20, 1940, was the outstanding success of the year, and the bright gaiety, the vivid costumes, and the stage directions drawn by Mr. Graf from the directions in the original libretto, and all subordinated by him to secure unity of music and libretto, had much to do with the success of the opera.

Helen Traubel, American soprano for Wagnerian parts; Jarmila Novotna, a singing actress of rare intelligence and charm whose Traviata and Cherubino brought great praise; Alexander Kipnis, a great singer and dramatic interpreter in German rôles; Georges Cathelat, engaged for the rôle of Pelleas; Lucia Albanese who did Butterfly; and Harriet Henders' Sophie in "Rosenkavalier," all were newcomers in the 1939-40 season. The 1940-41 season brought Jussi Bjoerling, tenor, Joel Berglund, baritone, and Francesco Valentino, baritone for new members of the company.

LABOR ADJUSTMENTS AT THE METROPOLITAN

But problems other than artistic constantly confront the Metropolitan, as they do other similar organizations. A new basic agreement has been reached between the Metropolitan Opera Association and the American Guild of Musical Artists. By the new agreement, previous forms of contract and many practices about which the artists have complained have been abolished. A 100 per cent AGMA shop has been instituted, and every member of the company, singers and dancers alike, must be an AGMA member in good standing. The new contracts eliminate the "franchise fee" for radio and certain other appearances. Any controversies over contracts or any other questions are to be settled under the rules of the American Arbitration Association. Minimum fees for singers, maximum length of contracts with any singer, fees for stage directors and dancers, and many other matters are settled by the AGMA pact. This pact should do much to simplify at least some of innumerable details attendant on all contracts.

Mr. Johnson agreed to the unionization of the backstage musicians. Assistant conductors, instrumentalists, arrangers, copyists, librarians, coaches, ballet conductors, and the rehearsal pianists joined the members of the orchestra in Local 802 of the American Federation of Musicians. This means even more problems for Mr. Johnson to work out with union officials, for it is the stringency of the union rules, many of them apparently arbitrary, which have long precluded the restudying and refurbishing of many of the older operas.

CHICAGO OPERA PLANS

Chicago, too, has ambitious and well defined plans. Thirty years ago a resident grand opera company was established, and on Nov. 2, 1940, a gala performance of "Aïda" marked the anniversary. The Chicago Opera Company now holds forth in the Civic Opera House, erected in the flourishing days of Samuel Quoull and the Civic Opera Company, and many of the names on the roster of the present company go back to the earlier one. René Maison and José Mojica are but two of the more familiar names of a decade ago. A long roster of distinguished names includes many of the singers heard at the Metropolitan in leading roles. A fine repertory of 22 operas comes from the batons of Maurice Abravenel, Paul Breisach, Henry Weber, and others. Montemezzi was engaged for a performance of his "Love of Three Kings." Several operas in English, an excellent chorus chosen as the result of public auditions, a "Business Men's Night" when informal clothes were in order, a weekly "Board of Education" night to encourage school children and teachers to become opera-conscious at performances for which prices were cut 25 to 50 per cent, the sale of blocks of tickets to large groups for certain nights, all these efforts and many others have built up interest and attendance at the Chicago Opera Company. The most easily measured result is that the company's 1940 deficit was the smallest in Chicago operatic history.

PHILADELPHIA

Philadelphia may claim a vigorous young opera troupe. There the Philadelphia Opera Company launched its third season, 1940-41, with a company of resident singers, and without any stars. The greatest part of the repertory was sung in English, and here, as in Chicago, the increasing popularity of the operas in English continue to indicate where successful American audiences may be built up. The price of opera tickets in Philadelphia is 50 cents to $2.50. A deficit of $6,000 was shared by some 30 guarantors. Sylvan Levin and Hans Wohlmuth are music and stage directors for the company. The company offered a prize for an American opera, but of the 37 manuscripts submitted, none was considered of sufficient combined musical and dramatic quality to merit production, although many showed high promise.

LOS ANGELES

The year 1940 saw the formation in Los Angeles of the Southern California Opera Company. Vladimir Rosing was the director. His assistant was Mme. Villiers-Graf, formerly of Covent Garden. Albert Coates was the conductor. The operas in the repertory—all in English—included "Faust," "Pagliacci," "Cavalleria Rusticana," and Mr. Coates's own "Gainsborough," an opera based on the life of the eighteenth-century painter.

CINCINNATI

Cincinnati went ahead with its usual summer opera at the Zoölogical Gardens. Abandoned after 14 years in the face of difficult economic conditions, Cincinnati's summer opera went to the University of Cincinnati Stadium in 1934 for a single season, but the same little enterprising group which reorganized it and kept it going brought opera back to the Zoo in 1935 for a brilliant six-week season, which has since flourished. Each summer has seen increased attendance and improvement in quality of production and personnel. Fausto Cleva remains conductor after seven seasons. Wilfred Pelletier also conducts a number of performances each season. Outstanding soloists from the Metropolitan and elsewhere continue to appear. The 1940 season ran from June 30 to Aug. 10, the repertory including "Aïda," "The Barber of Seville," "Butterfly," "Rigoletto," "Tosca," "Carmen" and others.

CARNEGIE HALL, NEW YORK

In March, three American operas were given their premières in concert form at Carnegie Hall. There Deems Taylor's "Ramuntcho," a Basque story with lovemaking and smuggling running through it, Vittono Giannini's "Beauty and the Beast," and William Dinsmore's "Thorwald," a story of the pagan splendor of the Vikings, all had orchestral numbers played so that the flavor of each could be made clear.

OTHER OPERA VENTURES

Other opera ventures go on in other cities, with new companies constantly springing up. St. Louis had its customary spring season and saw "Carmen," "Manon," and "Rigoletto," with Laszlo Halasz as director. Trenton, N. J. has a new company directed by the concert master of the local orchestra, Michael Kuttner, and bolstered by a chorus of 40 local singers. San Francisco had a successful season put on by its own opera company, the most popular operas having been "Rosenkavalier," "Don Giovanni," and "Figaro." "The Girl of the Golden West" was put on with success in English. The San Carlo Opera Company completed its 30th annual tour in 1940, having visited cities as widely separated as Washington, D.C., Chicago, New York, and cities on the Pacific coast.

BERKSHIRE MUSIC CENTER

On July 8, 1940 opening exercises were held at the Berkshire Music Center at Tanglewood, Stockbridge, Mass. Here for four years the Boston Symphony Orchestra under Sergei Koussevitzky had held the Berkshire Symphonic Festival, and here had crystallized plans for such a music center as might bring together the finest music and the finest musicians in the world. The holocaust in Europe helped bring Koussevitzky's dream to pass. For years he has wanted to establish a music center where trained musicians of high calibre might come for coaching with experienced performers of high rank and where fine music might be made by students and teachers. He has wanted, too, to have such a center where a festival equal to, if not surpassing, the great festivals which have obtained in Europe might be given. Now all this seems firmly established. The opening of the center marked a new achievement in American music. The response from American musicians was very impressive.

Twice as many students applied for places at the center as could be accommodated, and places were available for 350. The students were, therefore, picked for their high records of study and accomplishment. The Berkshire Music Center does not offer routine music study nor the development of individual virtuosity. The student body is divided into two groups. The higher, for the specially gifted post-graduate who aspires to the finest standards of style and interpretation in performance, are grouped in the upper department of the school called the Institute. For the remaining group, who do not necessarily plan to become professional musicians but who do wish to widen their musical horizon, the Academy is planned.

During the 1940 season, the school's Festival Chorus prepared Bach's B minor Mass for the concerts of the Berkshire Symphonic Festival, which was held Aug. 1-18, during the last three weeks of the school's sessions. Through the six-week session of the school, Dr. Koussevitzky himself gave instruction in conducting to four picked students, and certain others were given the privilege of attending the lessons. The Institute Orchestra of 60 highly trained musicians rehearsed, with the coaching of members of the Boston Symphony Orchestra. Herbert Graf of the Metropolitan conducted a class in operatic interpretation, Paul Hindemith and Aaron Copeland taught composition to a few advanced pupils, and a series of lectures went forward, given by several authorities in special fields of music. Among the lecturers were Dr. Koussevitzky, Archibald Davison of

Harvard Glee Club fame, Carleton Sprague Smith of Yale, Randall Thompson, Olin Downes, and others.

The Salzburg Festival, in its palmiest days, did not offer more to the orchestral musician than the Berkshire Music Center is able to do. Its presence in America is due to the initiative of Sergei Koussevitzky and the men who manage the affairs of the Boston Symphony Orchestra; to the inability of our American musicians to make their annual pilgrimages to foreign lands, now that war is raging again in Europe; and to the tremendous surge of musical taste and interest and discrimination which has grown in America during the past decade.

In addition to the summer season at the Berkshire Music Center, the Boston Symphony Orchestra completed its usual full schedule of 24 pairs of concerts, with several shorter series in and near Boston, and also made trips to New York, Baltimore, and other cities.

TOSCANINI AND STOKOWSKI IN SOUTH AMERICA

The next most newsworthy event of 1940, as far as orchestras were concerned, was the invasion of South America. This was accomplished by two musical divisions. Early in June, Arturo Toscanini and 100 members of the NBC Symphony Orchestra sailed to give 16 concerts in Rio de Janeiro, Sao Paulo, Montivideo, and Buenos Aires. In all four cities, the concerts were given to capacity audiences. The second excursion from our shores was even more spectacular. Leopold Stokowski, with his inevitable flair for publicity, assembled the American Youth Orchestra and took it on tour. The rapidity with which he managed to weld brilliant and talented young musicians into a fine orchestra was truly spectacular. True, each section of the orchestra had an older and experienced member from the Philadelphia Orchestra, but the success of the orchestra as a unit was remarkable, considering the short rehearsal time. Stokowski's theory that good musicians and a good conductor, with two weeks of intensive rehearsing together, make a successful orchestra was certainly borne out by the trip to South America,. and by the performances which the Youth Orchestra gave on its return in New York, Philadelphia, Washington, and Baltimore.

THE PHILADELPHIA ORCHESTRA

The Philadelphia Orchestra announced a schedule of 28 pairs of concerts in addition to the various special series of shorter duration which include concerts for young people and tours to various cities. Eugene Ormandy has been given a new contract as conductor and music director, this contract running for five years instead of three as previously. Mr. Ormandy, who joined the orchestra as co-conductor with Mr. Stokowski in 1936, has done a major share of the work in organizing, training, and conducting the orchestra since Mr. Stokowski's difficulties with his conducting arm. Mr. Stokowski conducted the orchestra during November with his usual brilliance, but the rest of the lengthy season fell to Ormandy, with only a short vacation allotted to guest conducting.

CHICAGO SYMPHONY

Celebrating its 50th anniversary, the Chicago Symphony Orchestra, Frederick Stock, conductor, had commissioned outstanding European composers to write compositions especially for this celebration. The trip which Mr. Stock and the orchestra's manager, Mr. Voegeli, made in the summer of 1939 has borne fine fruit. Listed in the compositions dedicated to the Chicago Orchestra were Stravinsky's newest symphony, which he himself conducted at its world première in November; Miaskovsky's Symphonic Fantasy in F minor, heard in December; Roy Harris's symphonic work, "American Creed," presented in October; Muradelli's First Symphony; Darius Milhaud's newest symphony; and Gliere's symphonic poem, "Holiday in Ferghana." Casella, Kodaly, and Walton also promised compositions. For the first time in 21 years, the orchestra made a trip to the East in the spring, playing at Pittsburgh, New York, Philadelphia, and Boston.

NATIONAL SYMPHONY

The National Symphony Orchestra, after nine years under the able leadership of Hans Kindler and after attaining an artistic stature which did credit to players and leader, found itself faced with the possibility of having to disband when a demand for a higher base rate of pay for the members of the orchestra was made by the union. There was justice in the demand for a higher rate of pay for the players; they had served loyally at a low rate of pay and that for a short season of only 20 weeks. But the probability of securing the extra money to finance the orchestra seemed remote.

In face of financial difficulties, the National Symphony has made a real "go" of its career. The 1939-40 season saw a series of 20 regular concerts, with 10 soloists, 12 student concerts, 50 concerts on tour, and five special performances, a total of 99 concerts. After three months of discussion and general agitation, a compromise was reached when the Labor Department Conciliation Service offered a plan for a sliding scale of payment, depending on the length of the season. This compromise plan was accepted by both sides, and volunteer workers raised the $107,600 necessary for maintaining the orchestra through another season.

That the capital of a nation as large and as rich as ours should find itself unable comfortably to support a good orchestra seems incomprehensible at first, until one remembers that here is merely a middle-sized city; that there is no government subsidy of a going orchestra; that there are no millionaire industries to sponsor radio hours or other forms of subsidy; and that the majority of residents of Washington are low paid workers in the civil service. Yet the general interest is large, the proportion of subscribers greater, considering the population, than in any other city of the country, and there is a real need for such an orchestra as the National Symphony.

For the 1940-41 season the schedule included three series of concerts in regular schedule, and, in addition, a special series of six concerts with soloists and a Beethoven-Brahms-Sibelius Festival.

ORCHESTRAS IN NEW YORK

Philharmonic.—The success of the January tour of the Philharmonic-Symphony of New York, John Barbirolli, conductor, was so outstanding that in November the orchestra went on its most extensive tour since 1928 when the Philharmonic and the Symphony Society had merged. In New York, Barbirolli was assigned the largest part of the 1940-41 season, with Mitropoulos taking four weeks in December, with Rudolph Ganz running the elementary Monday series and the young people's concerts, and with other guests filling in.

The New Friends of Music—Orchestra, under Fritz Stiedry, planned ten concerts for the 1940-41 season, four of them devoted to music by Mozart and three to Bach. New York also heard the New School Chamber Orchestra, made up of musicians from various orchestras in the city, and directed by Otto Klemperer, Rudolph Kolisch, and Thomas Scherman in a series of fortnightly concerts at the New School for Social Research.

W.P.A. Symphony.—Mayor LaGuardia, in spite of a fairly busy career running the city, found time to launch a series of low-priced concerts in December, 1939, and January, February and March, 1940. These were given by the New York City WPA Symphony Orchestra, and the Mayor secured excellent soloists who gave their services for these concerts. They played to completely sold-out houses, proving once more, if proof were needed, that there is a real demand for good concerts at lower prices.

The Beethoven Association, having decided to disband after many years of activity, gave to the New York Public Library its valuable collections of 1,500 books, music, manuscripts, instruments, pictures, and other items, the entire collection to be assigned to a special room or alcove at the library. The remaining cash assets also went to the library.

The National Orchestral Association of New York City under Leon Barzin continued its excellent work of training well equipped musicians for orchestral work. The Association is supported by members who contribute various sums, in return for which they receive tickets for the series of concerts. In the ten years of its activity, the Association has trained 1,337 students, and of this number 153 have secured positions with major orchestras. In 1940, 17 young instrumentalists went to six different orchestras.

OTHER ORCHESTRAS

Pittsburgh Symphony Orchestra under Fritz Reiner listed 16 pairs of concerts for the 1940-41 season. Fine soloists, and Stravinsky and McArthur as guest conductors, were listed.

Indianapolis Symphony Orchestra under Fabien Sevitsky listed ten pairs of concerts as its quota for the season and engaged several fine soloists.

Cincinnati Symphony Orchestra, Eugene Goossens, conductor, had his usual list of distinguished programs and soloists to bear witness, in the annual series of 20 concerts, to his skill as leader. Five young people's concerts enlarge the scope of the orchestra. Stravinsky and Enesco were engaged as guest conductors. Original compositions given "firsts" included Goossens's own symphony, played April 12, and Robert Casadesus's two-piano concerto, with the composer and his wife playing the solo parts. Goossens was presented with the Bruckner Medal of Honor by the Bruckner Society of America, Inc.

Minneapolis.—Dimitri Mitropoulos continued his brilliant leadership of the Minneapolis Symphony Orchestra, featuring on his programs interesting American works as well as a magnificent performance by the full string sections of the orchestra of Beethoven's C sharp minor String Quartet. During the time Mr. Mitropoulos journeyed to New York to act as guest conductor of the Philharmonic-Symphony, Stravinsky, Bruno Walter, and Edwin McArthur were guest conductors in Minneapolis.

The Detroit Symphony Orchestra listed a long series of conductors for the 1940-41 season when Franco Ghione, its conductor since 1937, remained in Italy. Victor Kolar, Bruno Walter, Efrem Kurtz, Tanno Hannikainen, Desire Defauw, Georg Szell, Enesco, and Stoessel, shared the total schedule of 45 performances.

The Los Angeles Philharmonic also lost its conductor, when Otto Klemperer, conductor for seven years, asked to be released from his contract, since his recovery from a serious illness which kept him from leading the orchestra during the 1939-40 season was not sufficient to enable him to take on the arduous task of running as large an orchestra with as full a schedule as the Philharmonic has now become. As a smaller return to his conducting, he has taken over the New School Chamber Orchestra in New York City, and also the popular priced series of the New York Symphony Orchestra. Bruno Walter took over the beginning of the 1940-41 season, the largest part of which he will carry, and Barbirolli of the New York Philharmonic Symphony and Rodzinski of the Cleveland Orchestra will come as guest conductors for five concerts.

The Cleveland Orchestra, Artur Rodzinski, conductor, continues a flourishing career with the regular series of concerts, fine soloists, many "firsts," and the best American pieces available. These last, for 1940-41, include Weinberger's new symphony "Abraham Lincoln," Roy Harris's "Folksong Symphony" for chorus and orchestra, Randall Thompson's Second Symphony and Walter Piston's "The Incredible Flutist." The Cleveland orchestra made its first New York appearance in five years in February during an extensive tour. Popular concerts and children's concerts continue to be added to the regular subscription series.

The Rochester Philharmonic, under José Iturbi, continued on its successful way, with regular subscription concerts through the season.

St. Louis Symphony Orchestra, Vladimir Golschmann, conductor, completed its 60th season of subscription concerts in March, presenting at that time the world premier of Darius Milhaud's "Fanfare." The orchestra sponsored a contest for an original symphony by an American composer, offering a $1,000 prize. This was won by Antoni van der Voort with a Sinfonietta.

Dallas.—Jacques Singer, formerly a player in the Philadelphia Symphony under Stokowski, has gone to Dallas, Tex. where he is the leader of the Dallas Symphony Orchestra and where he has added lively concerts for young people to the regular, though brief, subscription series.

Buffalo.—Music in Buffalo received new impetus with the completion of a handsome new auditorium, the Kleinhans Music Hall, built at a cost of $1,500,000 with funds from the estates of the late Mr. and Mrs. Kleinhans jointly with a WPA grant. Franco Autori, conductor, opened the hall with the first concert of the subscription series of the Buffalo Philharmonic Orchestra. Autori has arranged for ten symphony concerts, five popular concerts, and a series of children's concerts for 1940-41.

Kansas City.—Karl Krueger, conductor of the Kansas City Philharmonic Orchestra, has enlarged the scope of the orchestra with a series of four Sunday afternoon novelty concerts, and with some operatic performances, as well.

THE THEATRE

By Jack Gould

Drama Department, *The New York Times*

THE PRODUCING PHASE

The year 1940 will be remembered as one of musical comedy. Perhaps as a normal reaction to the grim events abroad, the public was willing, and of equal importance, able, to pay $4.40 to hear lively tunes, laugh at comedians, and watch the dancing of pretty girls. Al Jolson, Ed Wynn, and Joe Cook returned to Broadway, and each enjoyed success. One producer, B. G. De Sylva, had three musicals running simultaneously on Broadway, a feat unattained since the halcyon day of Florenz Ziegfeld.

Such circumstances also indicated a market for dramatic comedies and many an impressario attempted to meet the demand. None had, however, the success enjoyed in this field a year ago. Serious dramas of quality were few but revivals enjoyed an unexpected boom in the professional theatre. An unusually large number of importations was also presented.

THE BUSINESS PHASE

Compared with the previous 12 months, the theatre offstage enjoyed a quiet year. The most significant event was the decision of the Actors Equity Association to play Sunday performances at the usual daily rate of pay, the earlier demand for double pay having made them financially impractical for producers. After all the hue and cry of years, however, there was no sign by the end of 1940 that the shows were to be the huge financial success expected. This state of affairs was due in part to the fact that the "hits" avoided Sundays and only the less successful ventures played on the Sabbath.

Actors Equity also raised its initiation fee for new members from $50 to $100, a move frankly designed to discourage youngsters from entering an over-crowded profession, and increased the minimum from $40 to

$50. Bert Lytell was elected president of the union.

The ticket code designed to curb speculation enjoyed greater success than before and was generally accepted as a permanent thing in the theatre. The brokers were repeatedly unsuccessful in their efforts to upset it in the courts.

The stagehands figured again in the national news when, meeting in convention in Louisville, they unanimously re-elected George Browne to the presidency of the International Alliance of Theatrical Stage Employees and Moving Picture Machine Operators Union, an A.F. of L. affiliate. Two of Mr. Browne's lieutenants are Willie Bioff and Nick Circella, one-time associates of Al Capone hoodlums, whose presence in the union movement prompted widespread criticism.

The year 1940 saw the Dramatists Guild and Actors Equity get together on a plan to encourage experimental theatre productions outside the commercial restraints of Broadway. There were also new efforts, not altogether successful, on the part of the dramatists and the motion picture companies to agree on methods for Hollywood money to finance play productions.

PRIZES

For the first time the Pulitzer Prize Committee and the New York Drama Critics Circle were able to agree on what was the best American play of the season: "The Time of Your Life" by William Saroyan, which was described in this report for 1939. Mr. Saroyan, always the unpredictable, flatly rejected the $1,000 cash award accompanying the Pulitzer prize, but the authorities at Columbia University told him that whether he liked it or not he would go down in their archives as the winner. "The Time of Your Life" was not a financial success at the time the prize was awarded, Lee Shubert, one of the silent partners in its production, complaining a little bitterly that it had cost him $25,000. On a return engagement in New York and later a road tour it managed, however, to recoup a substantial portion of its original investment. Eddie Dowling, who played the leading role, was the nominal sponsor.

Early in 1940 Mr. Saroyan unfolded another play, "Love's Old Sweet Song". It, too, defied any precise definition, embracing wrestlers, telegram boys, Okies, a pitchman, and other whatnot in an evening of agreeable vaudeville but perilously little meaningful theatre. It lasted for only a short time. Undismayed, Mr. Saroyan went to work on a veritable library of plays, and three found their way to the summer theatre boards. *Variety,* the breezy organ of the show business, summarized them under the following headline: "Saroyan's Three Strikes and Out". At the year's end the Saroyan fad had abated noticeably.

THE NEW YORK WORLD'S FAIR

The second—and final—year of the mammoth spectacle on the Flushing Meadow found the theatre doing a good business and the shows at the Fair itself doing only mild trade. It was the other way around during the first year. For a time it appeared there would be no stage shows at the Fair for the World's Fair Corporation and the Actors Equity Association were locked in a controversy over the wages to be paid performers. After a brief delay in rehearsals, an event duly noted by publicity that did not exactly conceal the fact there was going to be a Fair, the shows went ahead according to schedule. The Fair sponsored on its own a spectacle entitled "American Jubilee", a song-and-dance review of the nation's history. Billy Rose presented a second edition of his Aquacade, and Michael Todd offered a condensed version of "The Streets of Paris," seen the previous year on Broadway, which for a time had the services of Gypsy Rose Lee.

THE LONGEST RUN

"Tobacco Road", the Jack Kirkland dramatization of the Erskine Caldwell novel, was still running at the end of the year. Its seventh birthday fell on Dec. 4, an all-time record.

CURRENT AMERICAN PLAYS

There Shall Be No Night.—This was the first play to be based on the European war, and it came from the pen of Robert E. Sherwood, who two years earlier won the Pulitzer prize for "Abe Lincoln In Illinois." With simple eloquence, made all the more immediate by the audience's realization of the world crisis that cast its shadow on American shores, Mr. Sherwood told of a sensitive and educated Finnish family that was caught in war's realities. "There Shall Be No Night" was both damned and praised, depending on the point of view, as pro-English and pro-war, but it was generally agreed that the play served to show that the theatre could be a genuine force in a critical hour. Soon after the play was produced Mr. Sherwood emerged as a stalwart of the Committee to Defend America By Aiding the Allies and one of President Roosevelt's consultants on foreign affairs.

No less than the writing, the acting in "There Shall Be No Night" was one of the events of the season. Alfred Lunt and Lynn Fontanne portrayed the heads of the Finnish household—one, the scientist; the other, the scientist's American-born wife. Their performances ranked with the best in their already distinguished careers. Richard Whorf and Sydney Greenstreet contributed similarly excellent performances. Mr. Lunt also did the direction. The Theatre Guild and The Playwrights Company were the producers.

The Male Animal.—James Thurber, the cartoonist, and Elliott Nugent, the actor and writer, fashioned an enjoyable comedy out of a bewildered college professor who is plagued by football and a campus Communist scare. It contained the funniest drunk scene of many a year —one where the professor endeavors to summon enough courage to dispose of a former football star who never realizes he was graduated. Mr. Nugent portrayed the professor with comic inventiveness and was ably supported in other parts by Leo Ames and Matt Briggs. Gene Tierney, a young society girl, had her first major assignment in the comedy and was promptly snatched by Hollywood. Herman Shumlin, who was also the producer, contributed one of his consistently good directorial jobs.

The Fifth Column.—Ernest Hemingway's controversial play, with embellishments from the pen of Benjamin F. Glazer, finally made its Broadway appearance under the auspices of the Theatre Guild. It was a moving, forceful play about an American volunteer with the Spanish Loyalists, which might have been one of the major successes of the year had it been better sustained toward the end. As it was, it enjoyed a moderate run. Franchot Tone demonstrated that the motion pictures had not damaged his flair for the legitimate stage. The supporting cast included Katharine Locke, Lee J. Cobb, Lenore Ulric, and Arnold Moss. Lee Strasberg did the staging.

My Dear Children.—After 17 years away from Broadway, John Barrymore returned in this inconsequential account of his own domestic gymnastics. In Chicago and other way stations of the mid-West, Barrymore proceeded to cause a major sensation by his irregular behavior, constant spats with his wife, backstage jealousies, and superb ad-libs on stage. A great talent was being wasted on bar-room high-jinks. Reportedly at the behest of his sister, Ethel Barrymore, the one-time matinee idol toned down his performance for New York. Expecting a carnival, which he indeed was furnishing off the stage, New Yorkers instead found a dull comedy which served only to bring back what *The New York Times* called "still the most gifted actor in this country". When he recited the soliloquy from "Hamlet", Mr. Barrymore was greatness itself. When he merely followed the lines of Catherine Turney and Jerry Horwin, authors of "My Dear Children", he was someone to occasion pity.

George Washington Slept Here.—The annual comedy from the pens of George S. Kaufman and Moss Hart was a disappointment when compared with its predecessor, "The Man Who Came to Dinner". Although its basic situation—the difficulties of living in the country—would seem to have comedy possibilities, this work boasted none of the customary professional touch of Kaufman and Hart and was labored throughout. Percy Kilbride just about stole the show as a country almanac. Others in the cast were Ernest Truex, Jean Dixon, Ruth Weston, and Dudley Digges.

Old Acquaintance.—John Van Druten, forsaking for the first time the usual London background for his plays, provided Jane Cowl and Peggy Wood with an adequate if hardly substantial vehicle for their specialized talents. Miss Cowl portrayed a feminine novelist who loses her lover to the young daughter of a friend, the friend being played by Miss Wood. Both Miss Cowl and Miss Wood turned in their usually proficient performances, and the play seemed assured of an appreciable matinee following. Adele Longmire and Kent Smith played the two major supporting roles.

My Sister Eileen.—The Ruth McKenny novel was dramatized by Joseph Fields and Jerome Chodorov and, thanks to the directorial abilities of George S. Kaufman, proved one of the hits of the year. The play told of two sisters who meet all sorts of developments in New York City and it was generally reminiscent of that earlier crack-brained comedy, "You Can't Take It With You", of which Mr. Kaufman was the coauthor. Shirley Booth and Jo Ann Sayers gave competent performances as the two sisters. Max Gordon produced.

Flight to the West.—Elmer Rice, one of the stalwarts of the Playwrights Company, discussed the vital issue of Democracy vs. Nazism in a play that was notable more for the vigor of its point of view than the validity of its dramatic action. In many respects resembling "There Shall Be No Night", by Robert E. Sherwood, also a figure in the Playwrights Company, the play contended that the free country would ultimately triumph over that under the heel of a dictator and was cordially received by the critics who believe the theatre should mirror the present-day world. Paul Hernreid, as a Nazi official, gave the best performance in the cast, which also included Betty Field and Arnold Moss.

THE LESS SUCCESSFUL PRESENTATIONS

"The Man Who Killed Lincoln", the Elmer Harris-Philip Van Doren Stern's dramatization of the latter's book, which was a poorly-written and poorly-acted account of the life of John Wilkes Booth; "Two On An Island", Elmer Rice's account of life in Manhattan, which exhibited the increasing talents of Betty Field, but proved a shallow drama; "Young Couple Wanted" by Arthur Wilmurt, another study of young people in Manhattan, which was a likeable comedy but lacked the expert touch that might have insured a longer success; "The Unconquered" by Ayn Rand, an amateur effort to depict Russia in 1924, which George Abbott presented; "Night Music" by Clifford Odets, which was still another attempt to show the life of young people in Manhattan and was summarized by one critic as "a foolish play by a man of great talent."

"Another Sun", a first play by Dorothy Thompson, the political columnist, and Fritz Kortner, the actor, set out to detail the plight of refugees in New York but was dramatically wanting; "Leave Her To Heaven" by John Van Druten, which had the services of Ruth Chatterton in the cast; "The Burning Deck" by Andrew Rosenthal, which told about an unlikeable group of people on a Mediterranean isle; "The Weak Link", Allan Wood's comedy about the master mind of a group of robbers, which for some reason did not run as long as it should but did demonstrate the acting talents of young Hume Cronyn; "A Passenger To Bali," an allegory by Ellis St. Joseph, in which Walter Huston played the lead.

"Goodbye in The Night", a mystery drama by Jerome Mayer, which was both confused and pointless; "A Case of Youth" by Wesley Towner, based on an earlier work of Ludwig Hirschfield and Eugene Wolf; "Separate Rooms" by Joseph Carole, Alan Dinehart, Alex Gottlieb, and Edmund Joseph, a light-weight comedy which, through the presence of some Hollywood stars in the cast and smart showmanship, outlasted many a more worthwhile vehicle and enjoyed a lengthy run; "Lady in Waiting", a comedy by Margery Sharp, which not even Gladys George could save from more than a limited engagement; "The Scene of the Crime", an old-fashioned melodrama, by Frank Gould.

"An International Incident", a first play by Vincent Sheean, the foreign correspondent, which served as a trifling and temporary vehicle for Ethel Barrymore; "Medicine Show" by Oscar Halpern and Hoffman R. Hays, which tried unsuccessfully to deal with socialized medicine in the manner originated by the Living Newspaper unit of the Federal Theatre Project; "Morning Star" by Sylvia Regan, which gave Molly Picon her first English-speaking part; "Heavenly Express" by Albert Bein, which was one of more worthwhile of experimental scripts but met with little success at the box-office.

"Grey Farm" by Hector Bolitho and Terence Rattigan, which saw Oscar Homolka make his Broadway debut; "Out From Under" by John Walter Kelly, a dull comedy which somehow was presented under the imprimateur of Brock Pemberton; "The Strangler Fig," a dramatization by Edith Meiser of the John Stephen Strange book; "The Return of the Vagabond," by and with the one and only George M. Cohan, who was unable to duplicate the success of the play's predecessor, "The Vagabond;" "At The Stroke of Eight" by Percy Robinson; "Russian Bank" by Theodore Komisarshevsky and Stuart Mims; "Jupiter Laughs" by Dr. A. J. Cronin, the novelist; "Romantic Mr. Dickens" by Henry H. and Marguerite Harper, which gave Diana Barrymore, the daughter of John Barrymore and Michael Strange, the opportunity to make her Broadway debut.

"Delicate Story," an unsubstantial work, by Ferenc Molnar; "Every Man For Himself" by Milton Lazarus, which boasted Lee Tracy in the leading role; "Retreat To Pleasure" by Irvin Shaw, a confused and aimless comedy of the social set, which the Group Theatre offered; "Cue For Passion" by Edward Chodorov and H. S. Kraft; "Return Engagement" by Lawrence Riley; "Beverly Hills" by Lynn Starling and Howard J. Green; "Quiet, Please" by F. Hugh Herbert and Hans Kraly; "Glamour Preferred" by Florence Ryerson and Colin Clements.

"Horse Fever" by Eugene Conrad and Zac H. and Ruby C. Gabel; "Fledgling" by Eleanor Carroll Chilton and Philip Lewis; "Journey To Jerusalem" by Maxwell Anderson, a disappointing play on Jesus as a child; "Suzanna and the Elders" by Lawrence Langner and his wife, Armina Marshall; "The Flying Gerardos" by Kenyon J. Nicholson and Charles Knox Robinson, and a Christmas program of drama monologues and dancing by Ruth and Paul Draper.

IMPORTED PLAYS

The Corn Is Green.—This play by Emlyn Williams, which had been a success in London, really started the fall season in New York. With Ethel Barrymore having her first good part in years and playing it to the absolute hilt, it immediately fell into the category of a "smash hit" and seemed assured of a lengthy run both on Broadway and on the road. Mr. Williams tells of a restless female who brings education to a Welsh mining town and there uncovers a boy with extraordinary talent as a writer. The last two acts show her passing on the torch of enlightenment to the boy and becoming greater herself for doing it. Miss Barrymore did not miss a wisp of the meaning and her performance was destined to become one of the great things of the present-day theatre. Herman Shumlin did a masterful job of both directing and producing. The supporting cast was uniformly fine and included Richard Waring, Thelma Schnee, Rosland Ivan, Mildred Dunnock, and Rhys Williams.

Ladies In Retirement.—This importation from London, written by Edward Percy and Reginald Denham, proved a good "horror play" and afforded Flora Robeson a chance to give one of the best performances of her career. As had been true of several recent English murder mysteries, the authors were more concerned with psychological factors which finally uncovered the murderer than with a succession of black hands reaching out from a dark doorway to threaten the ingenue. Miss Robeson played an elderly lady who unemotionally kills her rich benefactor. Estelle Winwood, Jessamine Newcombe, Patrick O'Moore, and Isobel Elsom were excellent in supporting roles. Mr. Denham staged the play which was produced by Gilbert Miller.

Geneva.—George Bernard Shaw's 50th play came to New York after an extensive Canadian tour. It proved an intellectual, rambling discourse on the state of the unhappy world—Mr. Shaw takes his audience up to the declaration of war—which was theatrically invalid. The characters, including thinly-veiled portraits of Hitler and Mussolini, never came to life. The play was presented by competent all-English players, among them Maurice Colbourne, Barry Jones, and Jessie Tandy.

Others.—"Suspect" by Edward Percy and Reginald Denham, authors of "Ladies in Retirement", which was a shoddy murder play undeserving of the talents of its star, Pauline Lord; "Boyd's Daughter" by St. John Irvine, the London drama critic.

SHAKESPEAREAN REVIVALS

Romeo and Juliet.—This revival of Shakespeare's play was eagerly awaited by the motion picture fans because in the title roles were Laurence Olivier and Vivien Leigh, the latter of course being the young lady of "Gone With The Wind" fame in the cinema world. The two young stars, who were married soon after the closing of the revival, were unequal to the task. Their performances seemed superficial and in crying need of a director, a post which Mr. Olivier also filled. The production was in the Hollywood tradition and so gigantic that it got in the way of things. Mr. Olivier and Miss Leigh returned to Hollywood sadder and wiser.

Twelfth Night.—Under the auspices of the Theatre Guild and Gilbert Miller, Helen Hayes and Maurice Evans were brought together for the revival of the Shakespearean comedy, and Margaret Webster was assigned the directorial chore. Despite such an array of talent the revival was not wholly satisfactory, for it was erratic in spots and did not quite jell as a whole. Mr. Evans gave a superb performance as Malvolio and Miss Hayes left little to be desired as Viola. In the supporting cast June Walker was outstanding as Maria.

The Taming of The Shrew.—For the benefit of the Finnish Relief Fund, Alfred Lunt, Lynn Fontanne, and members of their acting company contributed a week of performances in the Shakespearean comedy. They could have played for many weeks more if they had so chosen, for the Lunt and Fontanne version of "The Taming of The Shrew" is certainly one of the most hilarious performances that the theatre can afford. It had been seen last in New York in 1935.

OTHER REVIVALS

Juno and The Paycock.—Sean O'Casey's play on the Irish revolution enjoyed a singularly successful revival, chiefly due to the presence in the cast of Barry Fitzgerald as Captain Boyle and Sara Allgood as Juno Boyle. Both appeared in the original cast in Dublin in 1924 and 16 years later gave performances which were of the best of the season. The cloud of doom hanging over the Boyle family was not without its timeliness in the world of 1940, and the critics were agreed that Mr. O'Casey's drama constituted a masterpiece of the modern theatre.

Love For Love.—The William Congreve comedy served as the annual revival of The Players. The cast was enough to make any producer green with envy—it included Walter Hampden, Leo G. Carroll, Bobby Clark, Dudley Digges, Romney Brent, Cornelia Otis Skinner, Peggy Wood, Violet Heming, and Dorothy Gish—but the Restoration drama none the less seemed antiquated and received only a polite welcome from the critics.

Charley's Aunt.—The serviceable Brandon Thomas farce was revived with unusual success by Day Tuttle, Richard Skinner, Mrs. Carly Wharton, and Martin Gabel. José Ferrer gave the performance of his career in the title role. Joshua Logan received particular praise for excellent direction, preserving the hokum of the plot yet flavoring it with a few modern touches. At the year's end it had already achieved a notable run for a revival.

Kind Lady.—The Edward Chodorov-George Haight dramatization of the Hugh Walpole story was revived by William A. Brady as vehicle for his wife, Grace George. She lifted the melodrama out of the usual class of revivals and gave a performance which ranked with the best of the year. Before it closed it had passed the run set by the original company, of which Miss George was a member.

Blind Alley.—The James Warwick play about a terrified gangster, with Roy Hargrave again appearing in the leading role, was revived by Marie Louise Elkins and Clarence Taylor but it enjoyed only a limited run.

SPECTACLE AND MUSICAL

Louisiana Purchase.—B. G. DeSylva carved another notch for himself in the world of musical comedy with this gay and funny charade of a hapless senator caught in the wiles of Louisiana politics. Victor Moore played the senator with the reliable William Gaxton as his foil. The audience asked little else. Irving Berlin furnished the music, and Morrie Ryskind and Mr. DeSylva fashioned the book. April Ames, Irene Bordoni, and Vera Zorina were in the supporting cast. It was still running at the end of the year, having opened in May.

Panama Hattie.—The unerring B. G. DeSylva came through with his third musical success in as many attempts with "Panama Hattie". The boisterous musical afforded Ethel Merman her initial chance to star alone, and she acquitted herself with singular success. Her vibrant singing of some of Cole Porter's acceptable tunes dominated the proceedings, as might be expected, but she also frolicked through a book which had to do with sailors, the Panama Canal, girls, etc. The supporting players included Rags Ragland, the able comedian from the world of burlesque; Frankie Hyers, Pat Harrington, Phyllis Brooks, Betty Hutton, Arthur Treacher, and Joan Carroll, an attractive miss of eight years.

Pal Joey.—George Abbott presented a musical version of the John O'Hara novel of the same title, and it represented one of the first efforts to endow a musical show with a measure of dramatic characterization. For the most part the experiment was successful though some critics found it tended to drag and contained an unnecessarily large amount of suggestive dialogue. Richard Rodgers and Lorenz Hart contributed one of their customarily finished scores, and Mr. O'Hara adapted his own book. Gene

Kelly, an able young dancer, had the title role, and others in the cast were Vivienne Segal, June Havoc, Jack Durant, and Leila Ernst.

Cabin in the Sky.—The best Negro musical in many a day was this fantasy concerning a little gambler and his prospects of going to Heaven or Hell. Ethel Waters, by now the foremost Negro actress on the American stage, played the gambler's wife and contributed her inimitable rendition of some of the best songs of the year, written by John LaTouche and Vernon Duke. Miss Waters will seldom again receive such a happy vehicle for her varied talents. Dooley Wilson gave an enormously attractive performance as the bewildered little gambler, and competent in other roles were Rex Ingram, Todd Duncan, and Katherine Dunham, the dancer. George Balanchine, the ballet director, staged the entire production with taste and imagination. Albert Lewis and Vinton Freedley were the producers.

Hold On to Your Hats.—Al Jolson came back to Broadway with his supplications to Mammy and Sonny Boy in this musical comedy which he produced himself. The story had to do with a crime buster on the radio who encounters some real gangsters but it was all Mr. Jolson's show. With the artless ease of the master entertainer he wandered about the stage doing what struck his fancy and oblivious to time and the cost of stagehands sang the songs which made his name in Hollywood and points east. Martha Raye, Bert Gordon, and Eunice Healy were in the supporting cast.

Boys and Girls Together.—After an absence of three years Ed Wynn came back to the theatre in a musical which he produced himself. He had a large supporting cast, Antonio and Renee DeMarco, Jane Pickens, and Dave Apollon among them, but the critics were agreed that he was the whole show and they asked no more. Mr. Wynn merely portrayed the "perfect fool" in a variety of predicaments and proved again he was one of the funniest men in the world.

It Happens On Ice.—The enormous Center Theatre, which has always been a problem to fill satisfactorily with a show, gave shelter to this ice spectacle, which Sonja Henie, who did not appear in it, and Arthur M. Wirtz produced. For the most part it consisted of a spectacular and eye-filling demonstration of the art of skating but Joe Cook was on hand to provide some of his comedy when the going became a little too unrelieved. He, of course, had his customary supply of fascinating gadgets with which to entertain. Norman Bel Geddes redesigned the interior of the Center to accommodate the spectacle.

Meet the People.—The Hollywood Theatre Alliance, embracing imaginative youngsters who tired of the humdrum of Hollywood, put together this topical revue, and it enjoyed a prolonged run in the film city before entraining the end of the year for Broadway. New Yorkers found it suggestive of the earlier "Pins and Needles" but all in all a spirited and timely evening of song, dance, and sketches. Outstanding in the cast were Jack Gilford and Doodles Weaver.

Others.—"John Henry," a fantasy with music, by Roark Bradford, author of the sketches on which "The Green Pastures" was based, and Jacques Wolfe, which brought Paul Robeson back to the stage but otherwise boasted little merit; Earl Carroll's Vanities," a shabby show of the night club ilk, unworthy even of the self-proclaimed connoisseur of feminine beauty; "Two For The Show," with sketches and lyrics by Nancy Hamilton and music by Morgan Lewis, a pleasant, tasteful musical that proved limited in its appeal; "Reunion in New York," the second revue to be offered by the young Viennese refugee performers, which deserved a better fate than it received at the box-office; "Higher and Higher," a musical comedy with a Rodgers and Hart score but little else; "Keep Off The Grass," which employed Jimmy Durante and Ray Bolger among others, but needed a book and score; "Walk With Music" which was burdened with an excess of plot; the Lyric Opera Company in a program of Gilbert and Sullivan operettas; "Sim Sala Bim," a magic show, with Dante; "'Tis of Thee;" "Mum's The Word," a program of pantomime by Jimmy Savo; "All in Fun," a Leonard S. Uman production.

SUMMER THEATRES

The rural playhouses blossomed forth in the greatest number ever—some 100 odd—but their record of accomplishment did little to boost their importance to the theatre as a whole beyond providing much-needed employment for actors. There was a number of tryouts of new plays but at the season's end none had proved their mettle on Broadway. The number of failures among summer stock companies was higher than usual, giving rise to thoughts that perhaps the rural residents are tiring of a steady diet of the old reliable revivals. Another season or two should tell whether the summer theatres, already adopting the commercial practices of their Rialto brethren, will not gradually dwindle.

MOTION PICTURES

By Bosley Crowther

Motion Picture Reviewer, *The New York Times*

THE WAR AND RELATED FACTORS

In a year which saw the entire world thrown perilously upon its beam ends, the American motion picture industry managed surprisingly well to maintain its balance. The extensive loss of foreign markets, which had already created damaging deficits by the end of 1939, was effectively compensated by hasty financial readjustments; the threat of governmental intervention in the shape of legislation and a trust suit was forestalled by a provisional settlement, and less momentous problems in the industry were met in a spirit of tolerant compromise. At the beginning of 1941, the future looked hopeful, if not particularly bright.

In common with others, Hollywood was most concerned by the war and its possible consequences during 1940. As a result of the Nazi invasions of Scandinavia, the Low Countries, and France, 11 nations were closed completely to American films by the end of the year, and decreased revenues from Great Britain were subject to limited withdrawal. To offset this considerable shrinkage (about 40 per cent of gross revenues in normal times), careful economies were made in production budgets, increased attention was given to sales and exploitation in the domestic market, and definite steps were taken to develop Latin American outlets.

Although no sizable increase in revenue was drawn from this latter source in 1940 ($12,000,000 was the estimated annual gross), and some resentment was indicated by Brazil and Argentina towards certain "good neighbor" films from Hollywood, the industry was hopeful that an expansion of trade with the nations to the south of us would assist the marketing of films. This is one of the new year's most eagerly awaited developments.

THE ANTI-TRUST CASES

The most significant—in some quarters, the most enlivening—accomplishment of the year was the settlement by consent decree of the Federal suits in equity accusing the eight major companies of combining in restraint of trade and the independent exhibitor suits accusing the same companies of trust law violations. These suits, which had been designed to break up the theatre chain holdings of the larger producer-distributors and to eliminate the alleged evils of block-booking, blind selling, and the forcing of shorts by the major companies, had been hanging like a Damoclean sword over a fearful industry for two years, and their settlement brought at least temporary relief to a jittery state of affairs.

The consent decree was in the nature of an emergency compromise. The Department of Justice, realizing the time, expense, and energy which would be required to press the suits and the danger of disrupting a large national industry at a critical time, was obviously loathe to prosecute; the producers, anxious to avoid the pitfalls of litigation, were willing to strike a bargain.

By the terms of the consent decree, five of the eight defendants—Loew's, Warner Brothers, Paramount, RKO-Radio and Twentieth Century-Fox—agreed to abolish the former practice of selling pictures in blocks of as many as 50 and to sell, after Sept. 1, 1941, in blocks of no more than five. Furthermore, exhibitors must be permitted to see the pictures before buying them, and no shorts or newsreels can be forced in the sale of a block. An appeals board and arbitration system are established for the settlement of all disputes between producer-distributors and exhibitors.

There are loopholes in the compact. In the first place, the Government reserves the right to call the whole thing off if, after a three-year trial, it sees no improvement in the industry's practices and general attitude. Furthermore, the three remaining defendants—Columbia, Universal, and United Artists—flatly denied the Government's charge that they controlled theatre chains and refused to accept the consent decree. If they are not won over to it by the end of 1941, then the five present signatories are free to withdraw from the agreement and the Government, if it wishes, may reopen the suits.

Within the industry, the consent decree has posed some formidable problems. Financing and sales arrangements will have to be radically revised. Some observers foresee that the "blocks of five" provision will eventually eliminate the cheaper "B" pictures and force a general improvement in the quality of films. On the other hand, many independent exhibitors regard the settlement with scepticism and maintain that it does not improve conditions, that selling in blocks of five will permit the same evils as selling in larger blocks. The operation of the system will be anxiously watched during 1941.

However, the consent decree had one considerable consequence. The controversial anti-block-booking Neely bill, which had passed the Senate and was up for consideration by the House of Representatives at the last session of Congress, was rendered superfluous by the settlement and went into the discard. Its revival is not considered likely.

SURVEY ON DOUBLE FEATURES

One of the most interesting, although in no way conclusive, highlights of the year was the national survey which Dr. George Gallup's American Institute of Public Opinion took upon the controversial question of the popularity of double-features in this country. A bone of contention for several years within the industry has been the familiar trade practice of offering two feature pictures for the price of one admission in many theatres. Exhibitors have generally maintained that public demand and consequent competition has forced them into this admittedly undesired practice; certain independent producers, most voluble of whom has been Samuel Goldwyn, have argued that it is economically wasteful, necessitates cheaper films and, in the end, is largely annoying to the customers.

At Mr. Goldwyn's instigation, Dr. Gallup undertook a survey early in the summer and discovered that 43 per cent of the public favored double-features, with 57 per cent against. However, a breakdown of the results revealed some decidedly ambiguous facts. In the first place, the majority opinion was chiefly supported by persons over 23 and those in the upper income brackets; youngsters and the poorer customers voted overwhelmingly for double bills. Furthermore, 63 per cent declared in favor of doubles provided both pictures were "good." So the survey, while it furnished plenty of tangible evidence, proved nothing definitive. The double-feature practice was not noticeably affected anywhere.

However, the survey did turn up two surprising and disquieting pieces of information. One was that an estimated 32,000,000 persons who are financially able do not attend the motion pictures in this country more often than once a month. The other was that merely 54,000,000 customers patronized the nation's film theatres weekly, a decided drop from the 85,000,000 weekly customers which Will Hays and other industry authorities had been estimating for years. Even the fact that the survey was taken in the summer, a generally slack season, did not explain the discrepancy.

This experience pointed the fact that accurate business and production figures for the entire industry are hard to come by, that many annual estimates are largely guess-work. However, the number of feature films released during 1940, as checked through the Motion Picture Producers and Distributors organization, was 530, a sizable decrease from the 596 of 1939. The total amount spent on production was not determinable, although it was probably off somewhat, because of economies, from the $155,000,000 estimated in 1939.

Even so, the quality of films produced during the year was exceptional. The run of product was about the same as usual, to be sure—routine and strictly commercial—but the top pictures were more varied in theme and more stimulating in expression than in many years past. This fact was vastly encouraging.

THE "TEN BEST" PICTURES

The "ten best" films of the year, as selected by *The New York Times*, were:

"The Grapes of Wrath," adapted from the novel by John Steinbeck; directed by John Ford and produced by Twentieth Century-Fox, with Henry Fonda, Jane Darwell, and John Carradine in the cast.

"Our Town," based on Thornton Wilder's Pulitzer prize-winning play; directed by Sam Wood for Sol Lesser, with Martha Scott, Thomas Mitchell, Fay Bainter, and Beulah Bondi featured.

"The Long Voyage Home," adapted by Dudley Nichols from four plays of the sea by Eugene O'Neill; directed by John Ford and presented by Walter Wanger, with Thomas Mitchell, John Wayne, and Barry Fitzgerald prominent in a large cast.

"Fantasia," a unique "cartoon concert," produced by Walt Disney, with Leopold Stokowski and the Philadelphia Orchestra featured prominently.

"Rebecca," from the novel by Daphne du Maurier; directed by Alfred Hitchcock for Selznick-International, starring Laurence Olivier and Joan Fontaine.

"The Great McGinty," a political satire, written and directed by Preston Sturges for Paramount, with Brian Donlevy and Akim Tamiroff in the cast.

"Pride and Prejudice," a screen version of the Jane Austen novel; directed by Robert Z. Leonard and produced by Metro-Goldwyn-Mayer. Greer Garson and Laurence Olivier starred.

"The Great Dictator," written, directed, and produced by Charles Chaplin, with himself and Jack Oakie in leading roles.

"The Mortal Storm," adapted from the novel by Phyllis Bottome; produced by Metro-Goldwyn-Mayer with Frank Borzage directing, and Margaret Sullavan and James Stewart starred.

"The Baker's Wife," a French film, based upon a novel by Jean Giono; adapted, directed, and produced by Marcel Pagnol, and starring Raimu.

In an extensive national poll of newspaper critics, conducted by the trade paper, *Film Daily,* the following were selected as the ten-best American pictures released during the year ended Oct. 31: "Rebecca," "The Grapes of Wrath," "Ninotchka," "Foreign Correspondent," "All This and Heaven Too," "Abe Lincoln in Illinois," "Boom Town," "Northwest Passage," "Our Town" and "The Mortal Storm." Pictures released subsequent to Oct. 31, which number included "The Great Dictator" and "Fantasia," were not eligible.

FILM CRITICS' "BESTS"

As the best picture of the year, the New York Film Critics, in their sixth annual selection of "bests," chose "The Grapes of Wrath." John Ford, who directed it, was honored for the best direction of the year, for his work on this one and "The Long Voyage Home." Katharine Hepburn was voted the best actress of the year for her performance in "The Philadelphia Story," Charles Chaplin was selected as the best actor for his dual roles in "The Great Dictator," the French picture, "The Baker's Wife," was named the best foreign-language film of the year, and Walt Disney, Leopold Stokowski and their associates were given a special award for their production of "Fantasia."

A mild sensation was caused when Mr. Chaplin refused to accept the award to him on the grounds that, in so doing, he "would be acknowledging the fact that actors are competing with each other. And such an approach to one's work," he added, "is not very inspiring."

ANTI-TOTALITARIAN THEME TREND

The most pronounced trend in films which was notable during the year was that towards more outspoken and vigorous comment upon totalitarianism abroad. Whereas in previous years—so long as there was still hope of trade or the possibility of sanctions—Hollywood had been inclined to avoid direct criticism of the Nazi or Communist systems, the outbreak of war and the closing of borders made further caution unnecessary. The so-called "propaganda" films, which had been forecast in 1939, became commonplace in 1940.

The first American-made film to set its story directly in Nazi Germany and to show conditions which prevailed when Hitler came to power—the book-burnings, racial persecutions and political suppression—was "The Mortal Storm," which created considerable discussion when it was shown. It was followed by others in similar vein such as "The Man I Married" ("I Married a Nazi"), "Foreign Correspondent," "The Great Dictator," and "Escape." The anti-Communist sentiment was expressed comically in "He Stayed to Breakfast" and "Public Deb No. 1," but more grimly in "Comrade X." And from England, meanwhile, there came a stream of successively more violent anti-Nazi films, beginning with "The Lion Has Wings" and continuing with such as "Pastor Hall," "After Mein Kampf?", "Blackout", and the exciting melodrama, "Night Train."

Of them all, however, the most controversial was Charlie Chaplin's "The Great Dictator," for in it the "little tramp" and most beloved comedian in the world revealed a streak of tragic bitterness which was downright shocking to some. This eagerly-awaited film, which was Mr. Chaplin's first in over four years, found the comedian playing dual roles—one as a little Jewish barber in the readily identifiable country of Tomania, and the other as Adenoid Hynkel, the dictator of that country. The obvious caricature of Hitler which Mr. Chaplin gave in this latter role was a priceless piece of mimicry, but many critics and customers felt that Hitler and his system were too monstrous for satiric jesting. The film, however, had initial success in the key cities in which it was shown.

SOCIAL CRITICISM

Quite as unique, in many respects, as the anti-Nazi trend was the frank and unvarnished social criticism contained in "The Grapes of Wrath." When the John Steinbeck novel was originally bought by Twentieth Century-Fox, there were rumors that it had been acquired to remove it from the market, and predictions were made that it would never be produced, at least, not in the way it had been written. But when the picture was released, early in the year, it was noted with general amazement that no punches had been pulled, that it was almost the identical story of an "Okie" family's tragic wandering in search of a promised land in California that Mr. Steinbeck had written. And equally surprising was the fact that it became one of the most profitable pictures of the year.

A spate of lesser "Okie" pictures came along in the wake of it, but none had anything like the bite and reality of this great document. Nor was there any other film during the year to approach it in social significance.

Otherwise the product of 1940 was divided about as usual. There were the customary "Westerns," big-budget ones such as "Northwest Mounted Police," "Santa Fe Trail," and "The Westerner" and then the ordinary "B" class fare. About the usual percentage of films was derived from best-selling novels and hit plays. And comedies were more in evidence during the middle of the year. The much-talked-about intention of the film industry to "cooperate" with the Government in its national defense program by producing pictures on the subject had not been apparent in releases by the year's end. Several films along this line are expected early in 1941, however.

WALT DISNEY'S "FANTASIA"

But a real sensation was caused by Walt Disney's "Fantasia" when it opened on Broadway on Nov. 13. This completely novel feature, which was variously labelled as a "cartoon concert," a "musical cartoon" or what you will, was made up of eight classical concert numbers played by the Philadelphia Orchestra under the direction of Leopold Stokowski and illustrated on the screen by Disney cartoons. The film critics hailed the film with delight; the music critics and Columnist Dorothy Thompson variously lambasted it. But the public was generally delighted. Distribution of the film was limited to a few key cities, since special sound equipment had to be installed in each theatre where it showed.

FOREIGN FILMS

The effects of the war in Europe upon foreign film production became noticeable during the year with a decline in the number of importations shown. Good French films, which have been the most popular foreign fare with American audiences in recent years, were few and far between, though the reserve was not completely exhausted. Outside of "The Baker's Wife," the most notable French films of the year were "The Mayor's Dilemma" (French), "Hotel du Nord" (French), "Time in the Sun" (Mexican), and "They Met On Skis" (French). German and Italian films continued to come to the United States, mostly *via* South America, and a slight increase in Latin American imports was marked.

THE NEWSREELS

With spectacular news events occurring during the year—the European war, the national elections, and several big "spot" breaks—the newsreels had plenty to cover. But war films were notably played down because of an apparent public distaste for them, and no increase in newsreel popularity was distinguishable.

DOCUMENTARY FILMS

Likewise, there was an unaccountable decrease in the number of documentary films made during the year. The outstanding ones were Pare Lorentz's "The Fight For Life," made for the U.S. Film Service; Herbert Kline's "Lights Out in Europe," the March of Time's semi-documentary "The Ramparts We Watch," and Paramount's compendium of newsreels covering the past decade, "The World in Flames." Two extraordinary Nazi newsreel-documentaries were also shown in this country—"Campaign in Poland" and "Blitzkrieg in the West," which attracted considerable attention.

It was because clips from the former film were incorporated in "The Ramparts We Watch" that this first feature-length film of the March of Time was banned in Pennsylvania, creating the most notable case of censorship during the year. The Pennsylvania censors also held up "The World in Flames" briefly, but later permitted it to be shown in that state. Otherwise the censors were comparatively quiet. "The Fight for Life" was deemed objectionable by the Chicago guardians, since it dealt with the subject of maternity, and "Primrose Path" had a slight tussle with the censor in Detroit. "Ecstasy," the noted Czechoslovakian film, which had been held up for several years by the New York censors, was finally passed with a few elisions and a slight change designed to indicate that the illicit lovers of the story were husband and wife.

THE FILM STARS

There were no notable newcomers to the ranks of the stars during the year, although several younger players received favorable opportunities in supporting roles. Mickey Rooney held his place at the top of the list of box-office favorites, according to the survey made by the *Motion Picture Herald,* with Spencer Tracy up from third place in 1939 to second. Clark Gable was third and Gene Autry, a Western star, jumped into fourth place, the first cowboy actor to land among the ten top stars since Will Rogers held first place back in 1934. The remaining ranking favorites were Tyrone Power, James Cagney, Bing Crosby, Wallace Beery, Bette Davis, and Judy Garland. The 1939 favorites who missed out were Shirley Temple, Alice Faye, Errol Flynn, and Sonja Henie.

A bit of excitement was caused among the stars during the Summer when a charge of Communism was hurled at 12 prominent actors during a Los Angeles grand jury investigation of an old murder case. Such accusations had frequently been made on previous occasions, but this time the industry felt that a show-down was in order. Congressman Martin Dies was requested by the Screen Actors Guild to arbitrate the charges, and he gave clean bills of health to James Cagney, Humphrey Bogart, Robert Montgomery, Melvyn Douglas, and Fredric March, who were among those named. Therewith the issue expired.

PERIODICAL PUBLICATIONS

American Architect
572 Madison Ave., New York City.

American Cinematographer
1782 North Orange Drive, Hollywood, Calif.

American Home (The)
444 Madison Ave., New York City.

American Journal of Archaeology
Archaeological Institute of America, Columbia University, New York City.

American Magazine of Art
American Federation of Arts, Washington, D.C.

Antiques Magazine
40 East 49th Street, New York City.

Architecture
497 Fifth Ave., New York City.

Architectural Forum
15 West 48th Street, New York City.

Architectural Record
119 West 40th Street, New York City.

Art Digest
116 East 59th Street, New York City.

Art News
136 East 57th Street, New York City.

Arts and Decoration
116 East 16th Street, New York City.

XXVI. THE ARTS

Billboard (The)
1564 Broadway, New York City.
Design
20 South Third Street, Columbus, O.
Equity
45 W. 47th St., New York City.
Etude
1712 Chestnut Street, Philadelphia.
House and Garden
Greenwich, Conn.
Modern Music
113 West 57th Street, New York City.
Motion Picture Herald
Rockefeller Center, New York City.
Museum News
Smithsonian Institution, Washington, D.C.
Musical Courier
119 West 57th Street, New York City.
Musical Digest
119 West 57th Street, New York City.
Musician (The)
113 West 57th Street, New York City.
Octagon (The)
Elmira College, Elmira, New York.
Parnassus
137 East 57th Street, New York City.
Prints
1819 Broadway, New York City.
Professional Art Quarterly
18 East 48th Street, New York City.
Theatre Arts Monthly
40 East 49th Street, New York City.
Variety
154 West 46th Street, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

Academy of Motion Picture Arts and Sciences, Taft Bldg., Hollywood, Calif.
American Academy of Arts and Letters, 633 W. 155th St., New York City.
American Academy of Arts and Sciences, 28 Newbury St., Boston, Mass.
American Academy in Rome, 101 Park Ave., New York City.
American Ceramic Society, 2525 N. High St., Columbus, Ohio.
American Federation of Arts, The, Barr Bldg., Farragut Sq., Washington, D.C.
American Fine Arts Society, 215 W. 57th St., New York City.
American Institute of Architects, 115 E. 40th St., New York City.
American Numismatic Society, 156th St. and Broadway, New York City.
American Scenic and Historic Preservation Society, 287 Convent Ave., New York City.
Archaeological Institute of America, Columbia University, New York City.
Architectural League of New York, 115 E. 40th St., New York City.
Artists Guild, 9 Rockefeller Plaza, New York City.
Fine Arts Federation of New York, 115 W. 40th St., New York City.
Graphic Arts Board of Trade, 136 Liberty St., New York City.
Hispanic Society of America, The, 156th St., West of Broadway, New York City.
Municipal Art Society of New York, 119 E. 19th St., New York City.
National Academy of Design, 175 W. 109th St., New York City.
National Alliance of Art & Industry, 119 E. 19th St., New York City.
National Assn. of Women Painters and Sculptors, 42 W. 57th St., New York City.
National Institute of Arts and Letters, 633 W. 155th St., New York City.
National Sculpture Society, 115 E. 40th St., New York City.
New York Society of Architects, 101 Park Ave., New York City.

Society For American Archaeology, 10 Frisbie Street, Cambridge, Mass.

Society of Illustrations, 334½ W. 24th St., New York City.

Society of Independent Artists, 19 Bethune St., New York City.

DRAMA

Actors Equity Assn., 45 W. 47th St., New York City.

Actors Fund of America, 1619 Broadway, New York City.

Drama League of New York, Hotel Woodstock, 127 W. 43d St., New York City.

Dramatists' Guild, 6 East 39th St., New York City.

English Folk Dance Society, 155 E. 45th St., New York City.

Episcopal Actors Guild, 1 E. 29th St., New York City.

International Theatrical Play Bureau, RCA Bldg., New York City.

Independent Theatre Owners Assn., Hotel Astor, New York City.

International Alliance of Theatrical Stage Employees and Moving Picture Machine Operators Union, Chicago, Ill.

League of New York Theatre, 244 W. 44th St., New York City.

Motion Picture Producers and Distributors of America, Inc., 28 W. 44th St., New York City.

Motion Picture Producers Assn., Hollywood, Calif.

Motion Picture Theatre Owners of America, 1600 Broadway, New York City.

Museum of the City of New York, Theatre Div., Fifth Ave. and 104th St., New York City.

New York Public Library, Theatre Div., Fifth Ave. and 42d St., New York City.

Screen Actors Guild, Hollywood Boulevard, Hollywood, Calif.

Theatre Authority, 545 Fifth Ave., New York City.

Theatre Guild, Inc., 245 W. 52nd St., New York City.

MUSIC

American Federation of Musicians, 1450 Broadway, New York City.

American Guild of Musical Artists, 545 Fifth Ave., New York City.

American Guild of Organists, 1270 Sixth Ave., New York City.

American Society of Composers, Authors, and Publishers, 30 Rockefeller Plaza, New York City.

Cantors Registry, 95 St. Marks Pl., New York City.

Grand Opera Guild, 250 W. 57th St., New York City.

National Bureau for the Advancement of Music, 45 W. 45th St., New York City.

National Music League, 113 W. 57th St., New York City.

Oratorio Society of New York, 113 W. 57th St., New York City.

Philharmonic Symphony Society of New York, 113 W. 57th St., New York City.

DIVISION XXVII

EDUCATION

ELEMENTARY EDUCATION

By Wilma Leslie Garnett

Department of English, Kent State University

EDUCATIONAL FORCES IN NATIONAL DEFENSE

Forty-nine educational organizations met in Washington in the late summer of 1940 to mobilize the educational forces of the nation for defense of the democratic way. The theme chosen for Education Week, 1940, "Education for the Common Defense," was significant of the point of emphasis. Attention is being given to courses of study in citizenship at every school level the country over. Not only professional educators, but other classes of organized groups are devoting their energies to the task of educating American children to believe in the democratic way. Women have been urged by the National Council of Women, in which 20 national women's clubs are affiliated, to recognize the necessity of demonstrating to children the importance of the national ideals. The teaching should, according to the Council, be done in both home and school in order that the youth of the land may be prepared physically, intellectually, and morally to hold the line of defense against the enemy. The best American traditions can be upheld; in short, the re-discovery of America will be effected through education, especially elementary education and the teacher education that goes into it.

ENROLLMENT

There are now approximately 21,550,000 pupils ranging in age from 5 to 14 in the elementary schools, public and private. Of this number 680,000 are in the kindergarten; 2,100,000 are in grade one; and 1,900,000 are in grade eight as prospective graduates of the elementary school. About 2,680,000 of these children attend one-teacher schools.

Some of these schools are for white children, some for black and white, and others for black. It is to this army, well-trained in thinking, that not only the United States, but the world of the next generation will have to look for most of its leadership. It is crucial, then, that the 650,000 teachers, and in addition, the principals, supervisors, and superintendents, who guide these children in their educational program during this period, should be earnest and zealous in a great work.[1]

There is great variation among states in the proportion of school support provided by them from statewide sources, the range being from 89.7 per cent in Delaware to 1.6 per cent in Iowa. The average per cent for the 48 states is 29.3. The total receipts for public schools in all states is probably about the same as it was in 1935-1936 and is as follows from the various sources: Subsidies from educational foundations, $294,380; Federal sources, $9,849,574; state sources, $577,239,303; county sources,

[1] These statistics for 1940-1941 were given the writer by courtesy of Dr. Helen K. Mackintosh, Senior Specialist in Elementary Education, the United States Office of Education.

$150,969,201; local sources, $1,428,229,133; with a total of $2,166,581,591.[2]

As to individual costs of education, the average state expenditure per pupil (both elementary and secondary taken into consideration) is $74.30, the highest for any state being $146.90, and the lowest, $27.15.[3] Special studies of school costs have been reported for city schools, 1938-1939. It is of interest to note that the "estimated total cost per pupil in average daily attendance in all cities of 2,500 population and more in 1939 was $100.89. This is 59 cents less per pupil than the like cost in 1938." The average for the largest cities was $123.05.[4] These figures represent the averages for both elementary and secondary education in 334 city school systems.

During 1940, slightly more than half the elementary school children were attending school in small communities of 2,500 or less. The number of children enrolled in exceptional-child classes is 297,307. By exceptional child is meant a child either gifted or handicapped in some special way. The average annual length of the school session is 169 days; while the average class size—pupils per teacher—numbers 25.6. The high pupil-teacher ratio is 50; the low, 3.

THE PHILOSOPHIES OF EDUCATION

The purposes of elementary education accepted somewhat generally seem to be those set forth by the Educational Policies Commission. Interpretations of these purposes vary in specificity. Most interpretations place definite stress on these points.

(1) Elementary education is a matter of deep and basic concern to every citizen and should receive adequate public support with claims that should take priority over almost all other claims, for general education can give progressive and developmental direction to a democracy.

(2) General education should uphold and support the best American traditions.

(3) Education should be a continuous process from birth to death, and to that process elementary education should make its contribution of training in fundamentals within the grasp of children, such fundamentals as those bearing on building for good health; getting along with one's family and neighbors; learning about the local, national, and world communities; becoming proficient in using such various avenues of learning as reading, observing, listening, doing, and creating; learning to make good use of each day—living according to a well-balanced plan that includes both work and recreation; developing a functional philosophy, day by day, for decent and even artistic living.

(4) The educator directing such a program believes in making use of school, home, and community resources.

(5) The ability to recognize, face, define, and solve problems is considered fundamental in every area of work. All data available are to be at command for the attack upon a given problem. Evaluated honestly, used impartially, the data marshalled for use in solving the problems should make a change for the better inevitable in the case of the individual attempting the solution for some good purpose in the social order. In short, stress is placed on thinking through and solving worthwhile problems.

(6) Educators have faith in their schools as instruments for stimulating the creative minds to contribute to the social order.

(7) The educators themselves believe in thorough scholarship for their pupils and for themselves. There is more interest in this thoroughness today than ever before. Adults are to be guides, not mere onlookers at the educational meets (the schools), and

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[2] The facts given in these sections are based upon statistics of 1936, as reported by the United States Office of Education in *Elementary Education—What Is It,* Bulletin 1940, No. 4, Part 1, by Dr. Helen K. Mackintosh. These are the latest figures available.

[3] *Ibid.*

[4] John W. Studebaker, "Per Pupil Costs in City Schools, 1938-1939," Federal Security Agency, United States Office of Education, p. 3.

as guides it is their duty to see that each pupil learns to work near his capacity and learns to play for relaxation.

(8) There is an interest in having well-prepared teachers, supervisors, and administrators directing the program, for they are considered the key people charged with the obligation, from 1940 on for a period of years, of directing the 21,550,000 most important people in the world today, the American children who will have to assume not only national but world leadership for the next generation. The children of Europe will have little chance to lead; American children will have to take up the general responsibility for making world conditions better.

ELEMENTARY SCHOOL BUILDINGS

The school environment must make its contribution to the necessary school program. The immediate and materialistic phase of the elementary school environment is made up of the buildings, the furnishings, the equipment, and the books. During 1940, there were progressive developments in school building programs, in furnishings and equipment manufactures, and in book offerings.

A general view of the building situation over a period of years makes possible a judgment of the 1940 status on a comparative basis. The program of construction of school buildings in the United States may be divided into five periods: The pre-World War period, the World War period, the post-World War period, the depression period, and the reconstruction period (opening in 1939-1940). During the first period, there was little or no scientific planning for the construction of school buildings. In the second period (1914-1922), the average capital outlay for buildings each year was $116,934,893, or $5.71 per pupil. Many were the inadequate and unsanitary buildings. From 1922-1928, the average capital outlay for buildings was $372,111,009, or $15.27 per pupil. Capital outlay was cut drastically in the depression period. By 1934, the average outlay per pupil was only $2.24 per year. Grants and loans from the Public Works Administration from 1933 to 1936 amounted to $244,976,114. These loans stimulated building programs somewhat. The estimated cost of building construction needed, as reported in January, 1937, by 383 United States cities of 10,000 population and over was $496,745,782. Of 722 new buildings and additions constructed with PWA aid in 246 cities, over half were for elementary children. In 1939-1940, the estimated cost of building construction still needed in the United States for elementary school housing was $5,213,000,000.[5]

The school building program is still in arrears. There is a demand for school architects who know elementary school needs. They, working with professional educators, should be able to design buildings that will serve as monuments to elementary education over many years. Many of the professional magazines for educational administrators and for architects carry in them from time to time pictures of exemplary school plants and grounds. State departments of education, as well as the U.S. Office of Education, working out long-term building programs, school building plans, plans for school grounds, specifications for ideal buildings and grounds, furnish designs free or at small cost to communities. In some states school building regulations are being adopted. An excellent 1940 bibliography on the subject of standards and recommendations for school buildings and equipment is given in Educational Research Service (NEA) Circular, No. 7, 1940.

EQUIPMENT FOR THE ELEMENTARY SCHOOL

New buildings call for new equipment. The commercial companies display their equipment at national and state meetings of educators. As a result, new schools are being equipped with good lighting systems, healthful seating arrangements, correct window shades, good ventilating systems, useful laboratory set-ups, gymnasium furnishings, to say nothing of radios, moving-picture machines, musical instruments, and drawing-room furniture. The tendency is toward making schools sanitary, useful, and beautiful in construction and furnishings.

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[5] The statistical information on costs given in the preceding paragraphs has been culled from Alice Barrows, *The School Building Situation and Needs,* Bulletin, 1937, No. 35, United States Office of Education, and Bess Goodykoontz, *Elementary Education, 1930-1936,* Bulletin, 1937, No. 2, United States Office of Education.

A study of the advertisements of school equipment and furnishings as presented over the year 1940 in such magazines as *The Nation's Schools* and *The American School Board Journal* is an education in itself for the initiate. The ideal city or consolidated elementary school of 1940 includes classrooms, an auditorium, music and art studios, science rooms, home economics rooms, a gymnasium, a court in which flowers are kept growing the year round, libraries, a cafeteria and kitchen, small drawing rooms, health and administration offices, in addition to the usual service and utility rooms. The ideal small school provides for these types of space in a relatively provisionary way. Sometimes the library-classroom itself is convertible into an auditorium. A laboratory, a workshop, and a dining room may be provided in a basement room, which serves now in one capacity and then in another. On a small scale, the 1940 village school provides space for the same needs as does the large city school.

As to the out-of-door environment of the school, there seemed to be in 1940 a growing interest in providing adequate space for playgrounds for the little children and for the older children in the elementary school, in finding places in which to plant school gardens, and in landscaping the main grounds at the approach. That school grounds as well as school buildings should serve both utilitarian and artistic purposes seemed to be a part of the 1940 belief.

THE LIBRARY FOR THE ELEMENTARY SCHOOL

Buildings, fine equipment, and good furniture may be found in the school, but these without a well-filled library made up of wisely chosen books will be of little avail. The library is the heart of the elementary school as well as of the secondary school and the college. Many large elementary schools of 1940 have library divisions, and even small schools may have one room set aside for a book room. Some schools have less than 100 library books, while others have thousands of volumes. More and better use is being made of public libraries than ever before. Public schools and public libraries are co-ordinating their programs for the children of the community. State and county libraries send out books to rural and village schools as traveling-library loans. The 106, 772, 777 books, as well as the many magazines and newspapers in the public libraries in all the states, are available to the schools. Much credit should be given to the American Library Association for stimulating the growing interest in the reading of good books. The American Library Association, the United States Office of Education, the National Council of Teachers of English, and individual experts in the field of children's literature send out book lists from time to time to further the ever-growing interest shown by elementary school children in reading good books. Several excellent lists appeared in 1940.

THE CURRICULUM

With the library as the heart of the curriculum, it is now possible to have a broad variety of activities in the elementary school. Reading is still considered the chief avenue of learning, one to be supplemented by such avenues as observing, hearing, doing, and creating. In reading, the emphasis is being placed upon the semantics approach. Both denotations and connotations of words are being considered in a variety of ways. Probably the influence of Dr. I. A. Richards, of Magdalene College, Cambridge, has been strongest in giving direction to this new interest in reading for meaning. Such a belief about the teaching of reading has made necessary the bringing out of basal readers that have in them content worth thinking, and that include pictures worth studying both from the fact-presenting and the artistic standpoints. Selections of literary merit have been used in the new books. Great artists have made the pictures for many of the new readers. New language, science, and social science books, like the new readers, are broad in scope, give an up-to-date treatment of subject matter in a functional way, and are well illustrated.

The avenue of learning called reading is today supplemented by rich experiences with many visual materials —exhibitions, moving pictures, slides, pictures of all kinds, maps, graphs, objects both within and without the school. Many excursions into the community and into the natural regions about it are being made a part of the programs at primary and intermediate grade levels. Aural learning, experience learning, and creative expression are provided for.

The 1940 curriculum for the elementary school includes literature, language (spoken and written), spelling, handwriting, science, health, social science, arithmetic, music, industrial arts, and physical education (or games) at the primary level. Safety education has become an important phase of the social studies. At the intermediate-grade level, advanced work in the same fields will be given. In place of an integrated program of social studies, some schools may give history and geography in the middle grades. The upper elementary grades carry the program further in each field. An attempt is being made at every level to have teaching, maintenance, and advancement phases of learning going on.

EXTRA-CURRICULAR ACTIVITIES

The types of activity mentioned are supplemented by many extra-curricular activities. The best of these lines of expression are finding their way into the main curriculum, such activities as those of band and orchestra, of drama groups, of sewing and cooking clubs, and of citizen leagues. Museum experiences—even lessons—in art, natural history, anthropology, archaeology are being stimulated in such centers as Pittsburgh, Cleveland, New York, Chicago. *The Carnegie Magazine* (Pittsburgh) reports frequently upon the interesting classes for children held there.

One of the most remarkable of these extra-curricular lines of activity is that sponsored by the Young Citizens League of South Dakota on a state-wide basis.

Another interesting development in the way of the extra-curricular lines of activity for the children has been going on in some states for 10 or 12 years. It is coming more and more into its own now and should, it seems, be mentioned because it points the way to developments in one of the most important phases of child training, that of health education. Certain health education courses sponsored by state health departments are being brought to the schools directly from these departments. One of the most notable of these programs is that carried by the Iowa State Department of Health. This program was initiated some 12 years ago by the Iowa Dental Society and was carried on until 1939 by the Bureau of Dental Hygiene at the University of Iowa. In this program affecting over 200,000 Iowa children, emphasis is placed upon getting children to eat the foods that science has found are suitable for providing the vitamins, minerals, and other substances essential for growth and protection of health. These health programs are laying an excellent foundation in the states in which they are used for a strong, well-built, and healthy adult citizenry some 10 or 20 years hence. The programs of Iowa, Oregon, Ohio, and other states are to be counted as among the greatest of school blessings given to elementary children.

EVALUATION OF THE ELEMENTARY PROGRAM

When it comes to evaluating the work of the elementary school today, pronounced trends seem to be in evidence, trends such as these: (1) evaluation is made in terms of what the program has done for the individual, and through him for the group; (2) more and more the report cards tend to statement form, rather than to grade form—statements in regard to physical, mental, and social status as observed by the teacher; (3) through tests (both standardized and informal), by observation, and in conference, the teacher or teachers pass judgment; (4) the child's judgment and that of his parents are taken into consideration; (5) improved tests of intelligence, achievement, and prognostication have been worked out for use in the schools. The new group tests of intelligence for young children are not so dependent upon ability to use language as were those of earlier days; the new tests of achievement are becoming more analytical and in some cases more diagnostic than were tests of a few years ago.

INTELLIGENCE TESTING AND THE HEREDITY-ENVIRONMENT QUESTION

The mention of intelligence tests brings up one of the burning issues of the day, that of the relative powers of nature and nurture in the development of a child. The findings of a group of scientists working on this problem over a period of years at the University of Iowa under the direction of Dr. George Stoddard have been presented this year and have aroused world-wide interest. One of the most complete summaries of thought on this problem is to be found in the thirty-ninth yearbook of the National Society for the Study of Education, *Intelligence; Its Nature and Nurture,* Parts I and II.

GUIDANCE PROGRAMS

Another development growing out of the programs of evaluation in the schools is that of guidance or personnel work. First, the problem children have been given attention; but now all children in the best schools, including the gifted, have a chance to receive personal advice and guidance on health problems, school work, social adjustments, and life work. In many large schools, such specialists as the physician, the dentist, the graduate nurse, the psychologist, the psychiatrist, the social worker, and others may be called in to assist in making a diagnosis and to offer the appropriate recommendations. Child guidance clinics, with a regular staff, have been set up in some of the larger cities.

SPECIAL TYPES OF SCHOOL WORK

Exceptional children are being given special types of instruction in some school systems through provisions made for special classes for dull children, gifted children, children partially deaf or deaf, children with poor eyes, cardiac cases, children having tuberculosis, and delinquents. Inadequate are the provisions for these special classes of children, but the interest shown in the matter by the U.S. Office of Education (with Miss Elise Martens in charge of the work) and the Parent-Teacher Association surely portends increasing attention to the problems of all kinds of exceptional children. The 1940 yearbook of the Department of Elementary School Principals, *Meeting Special Needs of the Individual Child,* gives in detail an account of attention to the problem of individualized instruction.

THE TEACHER IN ELEMENTARY EDUCATION

Just who is responsible for the direction of this program of education in the elementary schools? The teachers (as key persons), the principals, the supervisors, the superintendents, the school boards, the service force, directly, and the tax payers and legislators, indirectly—these are the responsible persons. The qualifications of administrators, supervisors, and principals have been going higher and higher for a number of years. Now, the qualifications for the key persons in this program of teaching—the teachers themselves—are going up. One qualification is that of a standard amount of training for teachers.

In a very real sense the teacher-training institutions are responsible for giving direction to the elementary school program. Teachers in the elementary schools will, in time, be required to have a minimum of four years of college work. At the present time (1940) Arizona, California, Connecticut, Delaware, District of Columbia, Indiana, Louisiana, North Carolina, Pennsylvania, Rhode Island, have this requirement for the elementary-grade teacher. The trend is definitely in the direction of more college training for those who serve in the key positions for the profession, both in the states named and in the other states.

The National Survey of Teacher Education made a few years ago has stimulated great interest in this field. Today, the American Council on Education is carrying forward the study of teacher education and is fostering experimental work in this field of training in many sections of the United States with the express purpose of raising the levels of educational activity in all public schools in the country. One interesting feature of the study is that the experimental work is being carried on in both the teacher-training institutions and in the public schools to which these institutions are sending their graduates as teachers—in thirty centers. Another interesting feature of the program is that it is most democratic. Each school participating is supposed to develop its own plan. The study is cooperatively undertaken by the American Council and schools which have initiated a request to join in the work. As an outgrowth of the work of the Council, some states conducted workshops on teacher-education during the summer of 1940.

Some of the problems which seem to be a source of concern in the profession today (in addition to the problem of satisfactory minimum amount of training) may be suggested by such topics as these: (1) salary schedules for men and women; (2) credit unions for teachers; (3) health; (4) tenure; (5) retirement plans; (6) in-service training; (7) citizenship—rights; (8) certification; (9) married teachers; (10) teacher load.

MEETINGS, LEADERS, AND PUBLICATIONS

The many people professionally interested in elementary education will surely be capable of developing from year to year a useful and an artistic program. Thousands of these people come together annually in professional meetings to study the problems presenting themselves. Seventeen thousand convened at the state meeting in Cleveland in 1940. Several thousand met at the NEA in Milwaukee in the summer. About ten thousand, representing many of the professional societies, met in St. Louis in February, 1940. These are but three out of the many professional meetings of the year. Through these meetings and through the vast number of periodicals and yearbooks published by the professional societies, the up-to-date study of school problems is made possible, and progress in education is made an inevitable and natural resultant under the direction of great minds.

The educational leadership of such contemporaries as Dr. John Dewey, Dr. Bess Goodykoontz, Dr. W. S. Gray, Dr. W. H. Kilpatrick, Dr. George Stoddard, Dr. Ernest Horn, Dr. Charles H. Judd, Dr. Helen K. Mackintosh, Dr. W. E. Russell, Dr. J. W. Studebaker, Dr. Lewis M. Terman has kept and is keeping American education moving in the right direction.

Many of the learned and professional societies have published yearbooks and bulletins. Some of the yearbooks of 1940 listed in the *School and Society* as being important are as follows: American Association of School Administrators, *Safety Education;* Classroom Teachers, *Implica-*

tions of Research for the Classroom Teacher; Department of Supervisors and Directors of Instruction, *Newer Instructional Practices of Promise;* The Elementary Principals, *Meeting the Special Needs of the Individual Child;* John Dewey Society, *Teachers for Democracy;* National Society for the Study of Education, *Intelligence: Its Nature and Nurture.*

Many are the published works coming out annually on the subject of education, authored or presented by the U.S. Office of Education, state departments of education, learned societies, graduate colleges, and individuals. The *Index of Education* lists the best of these and such magazines as *School and Society,* the *NEA Journal,* the *Elementary School Journal,* the *Elementary English Review,* and the *Curriculum Journal* give specialized lists annually. In addition, the U.S. Office of Education, state departments of education, and professional societies publish bibliographies of various types. The great number of publications available makes information about schools generally accessible.

To the already large number (thousands) of studies made in elementary education were added many others during the year, studies in such fields as testing, reading, language, art, music, social studies, speech, geography, environmental conditions, health, visual aids, community work, and applied psychology. These studies give direction to new work. A few general points set forth in many of the studies may be cited: (1) the school should teach less and teach that amount more thoroughly; (2) the school should make better use of community life in teaching; (3) there should be more attention given to teaching children to be healthy.

SECONDARY EDUCATION

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GENERAL

The year 1940 in secondary education was not merely a short and simple unit in the calendar. It was also the end of an epoch, and the end of a decade. It marked the end of a decade in which certain streams of energy in educational adjustment could be clearly recognized. It marked the end of an epoch in which the secondary school encouraged isolation, promoted tolerance, immunized its pupils against war, and sought objectivity of instruction. The year 1940 in secondary education is considered in terms of the following major divisions: Orthodox Events in Secondary Education, Relation of Secondary Education to the World Crisis, Implementing Secondary Education in Terms of the World Crisis.

In any given year, there are certain events which may be classified as orthodox. This does not mean that history repeats itself, or that these events are unimportant. It does mean that a composite survey would be fragmentary without them. They are the casual, not the colorful units in the educational chain. In this discussion, the orthodox events do not represent or reflect the master current of secondary education.

WHITE HOUSE CONFERENCE

The first White House Conference was convened in 1909. Since that time one has occurred every ten years. The basic purpose of these conferences has been to determine what is being done, and what should be done for the nation's children. The 1940 Conference had for its theme, "Children in a Democracy." The Conference was composed of parents, teachers, doctors, and social workers as well as representatives from various farm, labor, and civic interests. Secondary educators have revealed a keen interest in the reports of the successive White House Conferences.

The most important recommendations for secondary education in the 1940 Conference were: 1. Small school districts should be consolidated as a means of providing better schools; 2. Public agencies are bound to provide by social insurance, public work, and sufficient relief that families without income may save their children from lasting harm; 3. The schools should be controlled and managed by local authorities; 4. Provision for recreation should be recognized as a public responsibility; 5. State and Federal grants should be made to local school systems.

President Roosevelt, addressing the Conference, said: "New opportunities mean new duties. I believe with you that if anywhere in the country any child lacks opportunity for home life, health protection, education, or moral and spiritual development, the strength of the nation and its ability to cherish and advance the principles of democracy are thereby weakened."

YEARBOOKS OF EDUCATIONAL ORGANIZATIONS

In normal times, the yearbooks of various educational organizations and societies reflect and determine significantly the character of secondary education. The majority of these yearbooks appear at the time of the February meeting of the American Association of School Administrators. In general, the 1940 yearbooks did not presage the nature of the impending world crisis. They dealt with less dangerous subjects.

The yearbook of the American Association of School Administrators was entitled, *Safety Education*. Henry M. Hill, chairman of the yearbook commission, emphasized the need for safety by showing statistically that the average American is more likely to be killed or maimed by an automobile than was the colonial settler to be scalped by an Indian. The industrialization of society, the development of machinery for the home, and the increase of automobiles have demonstrated the need for specific instruction in safety. The yearbook contends that the direction and control of safety education for children and youth should be vested in the school. As evidence that safety in schools has been partially effective, the yearbook provides the following data: Between 1922 and 1938 the traffic fatalities to adults increased 160 per cent; during the same period the traffic fatalities to children of school age decreased 25 per cent. This result must be due largely to education.

The title of the 1940 yearbook of the National Society for the Study of Education was: *Intelligence: Its Nature and Nurture*. The volume presented and interpreted research data pertaining to this persistent controversial issue. Twelve years ago, this distinguished society prepared a yearbook on the same subject, and with the same result. The conclusion in each case was that both nature and nurture play important roles, and it is impossible to isolate the two factors. In the famous controversy of 1940, Dr. George D. Stoddard and the Iowa group of psychologists deflated the "constancy of the I.Q." theory. Their data revealed that in specific cases the I.Q. could be increased as much as 50 points. In the yearbook, however, the majority of conventional research workers held to the original theory of constancy.

During the year, the National Association of Secondary School Principals enriched the literature of secondary education with several valuable handbooks. In 1936, the Association's Committee on Orientation, with Prof. Thomas H. Briggs as chairman, published *Issues in Secondary Education;* also, in 1937, *Functions of Secondary Education*. Subsequently, Prof. Will French was made chairman of an Implementation Committee of the Association, designed to provide materials and suggestions for implementing the *issues* and *functions*. In 1940, the Implementation Committee published the following practical handbooks for secondary school principals and teachers: *Student Council Handbook, Youth and Work Opportunities, Counseling and the Secondary School Curriculum, Promising Practices in Secondary Education.*

PROGRESSIVE EDUCATION

In the camp of the Progressives, leaders in 1940 have been concerned primarily with an attempt to appraise the outcomes of the Eight-year Experiment. As is well known, the purpose of this study with the 30 coöperating secondary schools was to determine whether the conventional college entrance curriculum, the conventional examinations, and other sterotypes were necessary criteria for doing successful college work. In the cooperating schools, there has been no fixed curriculum. Each school has been individually responsible for the experiences it provides for its pupils. It is too early to give a definite appraisal of this study. Subsidiary reports are now being written. Dean Hawkes of Columbia College, who has been intimately connected with the study, commented as follows: "The results of this study seem to indicate that the pattern of preparatory school program which concentrates on a fixed set of entrance examinations is not the only satisfactory means of fitting a boy or girl to make the most out of the college experience. Apparently the stimulus and the initiative that the less conventional approach to preparatory school education affords sends on to college students, as well if not better prepared for college than comparable students who have been under the more traditional type of preparation."

For several years, The Progressive Education Association has been noted for its numerous concrete projects such as the Eight-year Experiment, curriculum studies, and summer session workshops. The present year is no exception. In 1940, the Association established the *Service Center* at its New York City headquarters. Some of the significant functions of this center are: 1. to develop a library of outstanding radio programs which will be lent to schools and to teachers on a cost-plus basis; 2. to organize and distribute the various art exhibits sponsored by the Association; 3. to assist in the development of films showing Progressive schools in action, and to make films available to individuals and groups on a cost-plus basis; 4. to compile lists of source materials, bibliographies, etc., for the particular use of classroom teachers; 5. to secure information with regard to outstanding work of a Progressive nature being done by individual teachers and other educational workers.

AN INNOVATION IN TEACHER EXAMINATION

The year marked an innovation in the development of the Teacher-examination Service of the American Council on Education. The Council conducted throughout the nation in 25 selected centers standard examinations for teachers. The examinations covered such areas as the following: understanding and use of the English language; reasoning ability; knowledge of contemporary affairs; general cultural information; understanding of professional educational points of view, goals, attitudes, and methods; subject matter to be taught. The examinations were limited to intellecual, academic, and cultural materials. The tests were prepared by the Coöperative Test Service and administered by the American Council.

The examination venture of the American Council is the latest link in a long chain of developments. Up to 1940, no comprehensive plan of teacher examination for wide-spread use had been devised. The plan removes the examination of teachers from the hands of local authorities. It is designed to serve the individual school in that national norms are provided. It is designed to serve the teacher in that a permanent file is maintained so that the candidate's record may be transmitted at his request to any employer. The American Council Plan has enlisted active support, and likewise provoked the severest criticism. Prof. I. L. Kandel (*School and So-*

ciety, June 22, 1940) maintains that such a uniform plan rightfully "denies the right of the individual teacher to be ignorant." On the contrary, the Philadelphia Federation of Teachers (*School and Society,* April 20, 1940) protested to the Board of Education against the examinations. They declared the examinations to be "unfair and undemocratic," and especially dangerous when prepared "by a small committee removed from the local scene in which the teachers work."

CERTIFICATION OF SECONDARY SCHOOL TEACHERS AND PRINCIPALS

The type of teacher or principal in the secondary school depends largely upon standards of certification. Two significant studies of certification were published during the year. Henry L. Sisk (*School Review,* April 1940) shows the "Trends in Requirements for Secondary School Certificates" for the years 1923, 1934, and 1938. The study included all states and concerned both professional and academic requirements for the secondary school certificate of the highest grade in each state. Mr. Sisk's conclusions were: 1. There has been a tendency toward specific statement in the statutes of professional and academic requirements; 2. There is a tendency to require five years of training, the last of which is at the graduate level, for certification as a secondary teacher; 3. Each year the requirements for the secondary-school certificate of the highest grade are becoming more standardized among the various states; 4. A study of the requirements set for graduation by state universities and teachers colleges would reveal the situation as it actually exists.

Anton Thompson and Charles W. Boardman, University of Michigan, reported a study (*School Review,* April 1940) concerning the certification requirements of secondary school principals. They summarized their findings for the forty-eight states as follows: 1. Thirty-two states issue a certificate for a high-school principal and make requirements for this office not made for high-school teachers; 2. In seventeen states the degree required for the principalship is an M.A.; five require graduate work beyond the B.A. degree; ten require only the B.A.; the other states do not issue a certificate for the principalship; 3. The modal number of required years of teaching experience is three years; 4. Fifteen of the thirty-two states issuing a principal's certificate have more than one grade of certificate; in some states this acts as a permit to serve in any high school; in others, such as Iowa and Nebraska, it qualifies only for service in smaller schools; 5. In eighteen of the thirty-two states issuing a principal's certificate the certificate is valid only for that office; most of the other states issue a general administrative certificate.

STATUS OF THE JUNIOR HIGH SCHOOL

No educational institution has received more consideration in the last 25 years than the junior high school. What is the present status of the junior high school? In a brief summary (*School Review,* Feb. 1940) Emery M. Foster, Chief, Statistical Division, U.S. Office of Education, answered this question. Mr. Foster examined the status of the junior high school by four-year periods, 1922 to 1940. The data for "regular" and for "reorganized" schools, he interprets as follows:

"In 1922 approximately 90 per cent of all public high schools were of the regular four-year type, following a seven-year or eight-year elementary school. These regular high schools enrolled over three-fourths (77.2 per cent) of all public high school pupils. Gradually the proportion of the number of four-year regular high schools has decreased from nine-tenths to five eighths, enrolling less than half (45.9 per cent) of the public high school pupils in 1938.

"The proportion of pupils enrolled in separately organized junior high schools reached its peak in 1930 and seems to have decreased slightly since.

This might be expected, as the separately organized junior high school is most commonly found in urban situations, where there is enough population to make a school of reasonable size with only three grades.

"The type of secondary school that has grown most rapidly, especially in recent years, is the combined junior-senior or undivided five-year or six-year school. Although almost one-fourth (23.4 per cent) of all public secondary school pupils are enrolled in this type of school, the systems having separately organized junior and separately organized senior schools enroll 30.7 per cent of all public secondary pupils. The fact that more than one-half the pupils in reorganized secondary school systems are in those having separate junior and senior schools, is probably due, as pointed out previously, to the location of these schools in large centers of population. In number, there were only 3,331 separate junior and senior schools in 1938, but they enrolled 2,380,802 pupils in contrast to the ,812,063 enrolled in 6,203 combined junior-senior or five or six-year undivided schools."

For years the New York City School System has included both the 8-4 and the 6-3-3 types of organization. In accord with the tendency indicated above, New York City in 1940 decided to adopt for the entire city the 6-3-3 type of organization. By such plan, the 8-4 schools will be gradually absorbed into the new program.

FEDERAL AID

As concerns legislation, Federal aid is precisely where it was in 1939. The 1939 Senate bill (S1305) was designed to provide a compromise on the two issues of Federal control and Federal support for non-public schools. This bill remained on the senate calendar for months after approval by the Committee on Education and Labor. The House Committee on Education refused to grant a hearing on the bill. The National Education Association, at its summer meeting in Milwaukee, passed a resolution censuring the President for failure to push forward this bill. By this time, however, the President and the Congress were concerned with grave international problems. The Federal aid bill was side-tracked or forgotten in the maelstrom of world affairs.

RELIGIOUS INSTRUCTION

It has been a principle of American democracy and American education to keep the public schools free of religious instruction. Many times in the nation's history, various groups have sought to inject religious instruction into the public schools, or to have pupils excused from the schools for purposes of religious instruction. In general, such attempts have failed. But 1940 marked a triumph for these undaunted groups in New York State. The legislature passed the McLaughlin-Coudert law authorizing boards of education to release children from classrooms, upon request of parents, for one hour a week of religious instruction. Such instruction is to be provided outside the school by teachers furnished by the various denominations.

RELATION OF SECONDARY EDUCATION TO THE WORLD CRISIS

The most profound concern of secondary education in 1940 was produced by the spectacle of *Democracy at Bay*. At the time of the February meeting of the National Education Association, America was playing the role of spectator in the so-called "phony war." The combatants themselves had not yet begun to fight. And yet before mid-year the German juggernaut had rolled relentlessly over Austria, Czechoslovakia, Poland, Denmark, Norway, Luxemburg, Holland, Belgium, and France. The fall of France marked a crisis in American public opinion. It was France that had produced the germinal seeds of American political democracy. It was France that had given Lafayette to America. It was France that had been the cradle of liberty, equality, and fraternity. It was France that had been the symbol of modern civilization. It was France that had the finest army in Europe.

But France had fallen. La belle France, the queen of culture, the France of Daudet, Rabelais, and Molierè; of Danton, Zola, and Chateaubriand; of Voltaire, Victor Hugo, and Anatole France, had been forced under the yoke as a barbarian tribe in the old days. The Swastika fluttered from the Eifel Tower, and German legions paraded under the Arc de Triomphe and along the Place de la Concorde. Americans knew they had come to the end of an epoch. Robert M. Hutchins told an audience at Yale University that the world was nearer disintegration than at any time since the fall of the Roman Empire.

In the crisis, dynamic and positive educational leadership was demanded. Executing an educational somersault, that former left-wing crusader, Jesse H. Newlon, called for a new orientation in secondary education. Addressing 1,000 summer session students at Columbia University, Dr. Newlon said: "For years we have been preaching fallacies about war, peace, and America's role in the world. I place myself under the same indictment. We have taught that war never settles anything. Look at the Revolutionary War and tell me that war never settled anything. It gave us our freedom. Look at the war in Norway. Try to tell a native of Norway that war never settles anything, or a native of Denmark or the Baltic countries. We have taught that the last war was caused by the munitions makers. I think only simple people can find things that simple. Teachers must abandon all these fallacies and adopt a positive program. They must back preparedness wholeheartedly. We must teach understanding of the meaning of democracy and deliberately teach loyalty to our democratic institutions so that youth will want to fight to protect democracy.

In the days following the striking of the Tri-color, America gave its answer to the dictators. The Neutrality Act was amended, stupendous aid was furnished to Britain, and a plan of selective military service was adopted. Both presidential candidates in the November election pledged themselves to a program of total defense and unlimited aid to Britain short of war. With President Roosevelt's overwhelming victory in the election, he emerged as the "peerless leader" of democracy in the western hemisphere. Within a few months there had sprung up a true dynamism to defend democracy.

At the close of 1940, it had become clear to all Americans that the great issue of the war was totalitarianism *versus* democracy, slavery *versus* liberty, civilization *versus* savagery. Hitler was recognized as the symbol of savagery, the four horsemen of the Apocalypse rolled into one—half man, half beast. This demonaic creature had become the arbiter of the universe. Not since Thermopylae had there been such a world crisis. It was recognized that *democracy was at bay*. Unless it could prevail in the game of force, democracy was doomed. If it could win, posterity would say: "This was its finest hour."

NATIONAL EDUCATION ASSOCIATION

The National Education Association exhibited dynamic leadership in the orientation of the total defense program. To expedite the program of total defense, the Association called a conference in Washington in the early fall of 1940. At this conference, embracing 49 educational organizations, a national committee on education and defense was organized. The projects launched by this committee were: 1. Immediate and continuous representation of organized education for effective cooperation with the National Defense Council; 2. The stimulation and coordination of the various projects of educational organizations and institutions for national defense; 3. Dissemination of information regarding defense to various educational organizations; 4. The maintenance and improvement of educational opportunities essential in a long-range national program.

The program of the National Education Association for American Education Week re-enforced its many other defense activities. The theme for the 1940 program of American Education Week was "Education for the Common Defense." The subjects for the successive days of the week were Enriching Spiritual Life, Strengthening Civic Loyalties, Financing Public Education, Developing Human Resources, Safe-guarding Natural Resources, Perpetuating Individual Liberties, Building Economic Security.

EDUCATIONAL POLICIES COMMISSION

The Educational Policies Commission, long-range planning committee of the National Education Association, has played an outstanding role in implementing America's defense program. In November, 1939, the Commission published a fundamental statement of policy entitled "American Education and the War in Europe." A second *vox populi* entitled "For These Americas," appeared in June 1940. A third and comprehensive "articles of faith" was issued in September 1940 entitled "Education and the Defense of American Democracy." This educational creed shows the defense of democracy to be a broad problem. It closes with the following admonition to schools:

"For schools which accept as their role in the present crisis not merely passive acceptance of this statement, but positive action, the Commission suggests the following steps: appoint a committee to engage all local educative and public opinion forming agencies in a unified program for the defense of democracy. Organize discussion groups to aid adults to reach sound conclusions on the urgent questions of national policy. Revitalize the citizenship teaching in the school. Secure the cooperation of the newspapers in advancing the whole program. Use the radio to dramatize the American struggle for self-determination. Bring the program to the attention of the public through American Education Week."

The Educational Policies Commission has further implemented its defense and democracy program through the publication of its 480-page volume, *Learning the Ways of Democracy.* In all, 90 high schools were examined to determine what was being done to inculcate the ideals of citizenship and democracy among America's future voters. In general, the Commission concluded that today civic education is fragmentary and inadequate in schools throughout the United States. The volume contains, however, many illustrations of excellent practice. As one phase of the study, the commission sought to determine whether pupils know the meaning of the word democracy. Two-thirds of them defined democracy solely in terms of rights and privileges with no regard to responsibilities.

AMERICAN YOUTH COMMISSION

The American Youth Commission has cooperated actively with the National Administration in the total defense program. The Commission has consistently maintained that if America is to prepare for total defense, the education of youth should be more realistic. To further this aim, it made the following recommendations: 1. High schools should give instruction in improved methods of reading to supplement such instruction in elementary schools; 2. Actual work experience should be part of high school curriculums; 3. Courses in the social studies should be expanded; 4. Instruction concerning personal problems should be given to youth.

These recommendations were implemented near the end of the year in the volume, *What the High Schools Ought to Teach.* Floyd W. Reeves, chairman of the Commission, characterized the volume as "one of the most important contributions to secondary education of this generation."

The American Youth Commission announced early its position concerning selective military service. In August, it issued the following official statement: 1. No person should be called for full-time military training unless he has reached the degree of maturity represented by the age of 21; 2. Men should be chosen by lot from a wide variety of ages; 3. This legislation should not be in force for a period longer than five years, preferably a period of three years; 4. The number of men called should be limited to those needed strictly for military reasons; 5. There must be no partiality or unfair discrimination in the selection; disproportionate numbers of unemployed must not be chosen nor must there be any racial discrimination; 6. The most modern methods of personnel examination and classification should be utilized to facilitate the assignment and training of each man for the duties to which he is best suited and in which he can be most useful; 7. Salary schedules in the army should be revised upward and equitably according to various levels of skill, training and responsibility.

PROGRESSIVE EDUCATION ASSOCIATION

During its short but vigorous history, the Progressive Education Association ever exhibited a buoyant vitality. It consistently maintained that educators should face squarely present-day social, political, and economic problems. In November, the Association announced the following nine-point program for implementing national defense: 1. Education must help us understand America and the people of America; 2. Education must help us understand what are the human and material resources of America and how this country uses them; 3. Education must help us understand that democracy is on the march; 4. Education must make us feel that we have a share, a part to play, a task to perform in national progress; 5. Education must help us understand the values of the democratic way of life; 6. Education must help us improve human relations and deepen our concern for the worth and dignity of the individual; 7. Education must help us to be the kind of world citizens needed in the interdependent world of today and tomorrow; 8. Education must help us to have sound bodies and mentally healthy lives; 9. Schools can develop programs to help us understand better the problems that democracy faces.

AMERICAN FEDERATION OF TEACHERS

The annual meeting of the American Federation of Teachers, Buffalo, Aug. 23, 1940, denounced communism, fascism, and dictatorship by a vote of 358 to 250. The resolution was directed at "all dictatorships whether of Nazi, Fascist, or Communistic origin; whether in Germany, Italy, or Russia."

Prof. George S. Counts, president of the Federation, proposed in an article in the New Republic, *"Educators in This Crisis,"* what he terms a Defense Decalogue for Educators. Professor Counts suggested the following ten theses as a basis for sound educational defense planning: 1. The educational forces of the country should achieve unity; 2. The educational services of the country should be fully maintained; present inequalities should be removed and deficiencies corrected; 3. Any system of universal service inaugurated by the government should be regarded as more than a purely military undertaking; 4. A far more comprehensive program of vocational training than we have ever had should be launched; 5. Through the educational facilities of the nation a program of adult education, surpassing anything the world has ever seen, should be launched immediately; 6. The elementary and the secondary school, cooperating with the surrounding community, should systematically teach democracy to the younger generation; 7. Colleges and universities should devote themselves far more than at present to the study of democracy—its nature, its history, its problems; 8. Teachers should organize thoroughly, so that they may play a more active role both in framing educational policy and in shaping the life of community, state, and nation; 9. The American public should devote great care to the selection of members of all boards controlling education; 10. Finally, the schools and colleges are under special obligation to guard the humane and intellectual heritage of the race.

NEW YORK STATE DEFENSE ACTIVITIES

When the nation sought to mobilize its resources for defense, the various states with their educational organizations, enlisted for service. The following steps taken by New York State illustrate the types of activities carried on:

1. The legislature created a joint sub-committee to investigate the educational system of New York City with particular reference to the alleged subversive activities in the schools.
2. On October 13, an eleven point educational program for coordinating the state public school system with the vocational defense program, was officially proclaimed by the New York State Teachers Association.
3. In June, New York State launched a program in cooperation with the Federal government to prepare within a year 150,000 workers for the war industries.
4. Howard W. Pillsbury, Superintendent of Schools in Schenectady, and legislative chairman of the New York State Council of Superintendents, urged educators to help foster a "fighting loyalty" to American democracy.
5. Dr. J. Cayce Morrison, Assistant Commissioner of Education, urged education for the American way of life. He said: "The real stake in this war is to determine which philosophy of life shall shape the history of nations."

IN NEW YORK CITY SCHOOLS

As the year closed, the implementation of the defense program had involved all school systems throughout the nation. New York City illustrated during the year how significant work can be done for implementing democracy in the schools of a great metropolitan area. Through the use of supervised forums, round table discussions, and radio symposiums, junior high school children in this city learned how to be good Americans, the duties and responsibilities of citizenship in a democracy, and basic traditions of tolerance and fair play. New York City revised its "peace" program in order to provide for a "defense" program. Under the new program according to Abraham Leavitt, James Monroe High School, three points are stressed: national unity, hemispherical solidarity, adequate national defense. The revised program indicates there are things even worse than war, and that occasions may arise when it is necessary to defend democracy. New York did not hesitate to take vigorous action in banning a reputedly pro-fascist Italian textbook.

THE SUPREME COURT AS THE BULWARK OF DEMOCRACY

The bulwark of a positive program for defense and democracy was provided for American public schools by the United States Supreme Court. In this year, this highest tribunal of the land decided that a pupil may be required to salute the flag. It is a common practice in American schools for children to repeat the pledge to the flag. Five years ago, the school board of Minersville, Pennsylvania, expelled two children belonging to Jehovah's Witnesses who refused to salute. The Supreme Court, in a decision written by Justice Frankfurter sustained the school board, resting his opinion on the belief that the flag is a symbol of freedom: "It signifies government resting on consent of the governed; liberty regulated by law; the protection of the weak against the strong; security against the exercise of arbitrary power, and absolute safety for free institutions against foreign aggression."

XXVII. EDUCATION

COLLEGIATE EDUCATION

By J. O. Creager

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HISTORY OF HIGHER EDUCATION

The past few years have been notable for the attention given to new publications in the field of the history of higher education. During the past 12 years it has been the writer's privilege to offer courses on higher education in the graduate division of the School of Education in New York University. These courses are for graduate students working for the doctorate with a view to teaching in colleges and universities. The courses deal with the historical and comparative study of the universities, the instructional phase, and the administrative field. A course on the junior college is also included.

In the historical field there had never been available a desirable publication for students to use as a textbook. Schachner's recent book, *The Medieval Universities* (Stokes, 1938) fills a long-felt need. It is quite scholarly in treatment and so attractively written that it stimulates the interest of the student in this very interesting period. In the field of American higher education, a book by R. Freeman Butts entitled *The College Charts Its Course* (McGraw-Hill, 1939) furnishes a satisfactory text for a course being offered now for the first time. While the title of the book seems to imply that it deals only with the American arts college, such is not the case. In "charting its course" the American college in many instances became a university, and the book thus traces this evolution of our American system of higher education in a complete and scholarly manner. A previous publication by Wills, *The Growth of American Higher Education* (Dorrance), is also advised as a supplementary text.

Another still more recent publication, containing much material bearing upon higher education, is a book by Dr. Edgar W. Knight of the University of North Carolina, entitled *Twenty Centuries of Education* (Ginn & Co., 1940). Although not confined to the field of higher education, the book contains a great wealth of material pertaining to the history of colleges and universities.

For the student interested in higher education from a comparative viewpoint, the *Autobiography of Friedrich Paulsen* (Columbia Univ. Press, 1938) will be found of unusual interest. It is translated and edited by Theodor Lorenz, and contains a foreword by Nicholas Murray Butler. It gives the reader a good view of the German university system in Paulsen's day, and the young man aspiring to become, some day, a university teacher, will unquestionably derive inspiration from Paulsen's interesting account of his own struggles toward this goal.

RESEARCH

The amount of research devoted in recent years to the field of higher education will be astonishing to those who have not given attention to the matter. As an indication of what may be contributed by one university, the chief findings of certain theses written under the direction and guidance of the faculty of the School of Education in New York University during the past ten years may be briefly noted.

GROWTH OF HIGHER EDUCATION

The first of these was a doctor's thesis by E. V. Wills, written under the sponsorship of Dr. H. H. Horne, chairman of the Departments of History of Education and Philosophy of Education. This thesis is entitled *The Growth of American Higher Education* and has been published as previously indicated. It deals with the origin and development of the following phases of American higher education: (1) colleges of the colonial type; (2) the state college and university; (3) the denominational college movement; (4) professional and technical training; (5) development of teacher-training; (6) higher education of women; (7) philanthropy in American higher education since the Civil War; (8) evolution of the college curriculum; (9) graduate training and research; (10) the urban college and university; (11) the junior college.

The style is clear and concise and there is great factual wealth, well-outlined and digested, in this small volume. It should be read as an introduction to the subject of the history of higher education and kept on the student's desk as a guide and outline for the more extensive study of the field.

THE AMERICAN GRADUATE SCHOOL

Subsequent theses have taken up special phases of the field of higher education. One of these, written by Dr. Byrne J. Horton (*The Graduate School*, N. Y. Univ., 1940) traces the history of our American graduate school. The chief topics treated may be indicated as follows: (1) origin, development, and meaning of the university idea; (2) origin and development of higher education in the United States from 1636 to 1876; (3) origin and development of Johns Hopkins University; (4) history of the graduate school and the development of its administration since 1880; (5) official workshop of the graduate school—the seminar; (6) administration of the graduate schools and their major problems.

Dr. Horton has the unusual gift of making even a doctor's thesis interesting—*mirabile dictu*. His chief conclusions, briefly stated, are: (1) that our American graduate school originated with Johns Hopkins University in 1876; (2) that its European background may be traced to the early medieval universities at Salerno, Bologna, and Paris; (3) that the basic framework of these medieval universities, together with the concept of research, most highly developed in the German universities, constituted the structure of our American graduate school; (4) that there was a "missionary period," so to speak, of our graduate school development, in which Johns Hopkins, Harvard, followed by Clark, Columbia, Chicago, Yale, Wisconsin, and Nebraska led the way and helped to establish the general pattern; (5) that the chief European influences were English, French and German (Chap. III). The bibliography covers a wide range of references in this field and the thesis constitutes a most valuable contribution.

TECHNICAL EDUCATION IN THE COLONIAL COLLEGES

Dr. Herbert E. Smith, another graduate student in the University to complete his thesis during the year 1940, made a study of *The Historical Development of Technical Education in the First Nine Colonial Colleges Founded in the United States, 1636-1862* (N.Y. Univ., 1940). The study is limited to what the author terms the "pioneer period" in technical education, since in the year 1862 the first Morrill Act which, the writer says, constituted "the greatest single influence on the growth of technical education" was passed.

The content of the thesis is well indicated in the following list of periods and topics covered:

I. Curriculum Offerings in Science and Applied Science, 1636-1776.
II. A Description of Textbooks in Natural Philosophy and Related Subjects in Use (1636-1776)
III. The Status of Industry and Commerce in the Colonies (1636-1776)
IV. Curriculum Offerings in Science and Applied Science (1776-1825)
V. Description of Textbooks, Syllabi, and Theses in Use (1776-1825)
VI. The Status of Industry, Commerce, and Engineering (1776-1825)

VII. Curriculum Offerings in Technical Education (1835-1862)
VIII. Description of Textbooks in Use in Period (1825-1862)
IX. Sketch of Development of Industry, Manufactures and Engineering (1825-1862)
X. General Summary and Conclusions

ADMINISTRATION OF HIGHER EDUCATION

In this field of higher education the old problem of academic freedom is a hardy perennial which has defied the ravages of time. In 1931, in New York University, a graduate student, Samuel Katzin, became interested in making a comparative study of this problem as between universities in our own country and those in Europe. "In the opinion of critics of American university control," he writes, "the faculties of American colleges and universities have no voice in the control of administrative functions in their respective institutions, and the entire control—so it is claimed—is exercised by the external boards of control or their agents, the university or college presidents." . . . . . "The same critics maintain that under the European method of control, the faculties are self-governing, and they advocate that the European form of control be followed in America."

This is a fair and a clear statement of the problem. The American Association of University Professors has through the years held to this point of view, and it has been one of the favorite academic pastimes of that organization to sit in autopsy upon professors unjustly deceased by so-called autocratic presidents and their boards of trustees. Katzin's first step was to "make an analysis of the typical powers or functions of control, as specified in the charters, or by laws of the average European and American institutions of higher learning." . . . . "This analysis shows that the following ten powers comprise all the functions exercised by external boards or agencies in American as well as European institutions: (1) to hold and manage property and funds; (2) to prepare budgets; (3) to approve budgets; (4) to select faculty members; (5) to appoint faculty members; (6) to select and appoint the chief executive; (7) to confer degrees; (8) to decide upon curricula; (9) to decide upon requirements for admission; (10) to decide upon requirements for degrees."

After tracing the problem historically, Katzin takes up these forms of control in succession in the universities of the United States, Germany, France, England, Belgium, Poland and Italy. He reaches the following conclusions: (1) "That none of the continental European universities studied have complete faculty control; (2) "That in Great Britain only a smaller part of the universities have complete faculty control, while in the greater part of British universities the control is divided between the faculties and external boards; and (3) "That in American universities, while they are legally entirely subject to external boards of control, in actual practice the faculties participate to a considerable extent in the exercise of important basic powers or functions of control."

Katzin concluded, in general, that, while there is some contrast between European and American practices, such contrast has been greatly exaggerated and that the universities of Europe are not free from external control, nor are our universities entirely subject to such control. "Essentially—whether in America or in Europe—university control is 'mixed control,' as both in America and in Europe the faculties and external agencies collaborate in the exercise of the functions of control."

THE PROBLEM OF CONTROL IN THE AMERICAN STATE UNIVERSITY

This problem of control was further investigated by Joseph W. Bird who wrote upon the topic, *The Problem of Faculty Control in State Universities in the United States.* The method of investigation in this case was to determine the agency of control as to the following seven functions: (1)

making regulations concerning admissions; (2) determining the curricula; (3) determining the requirements for degrees; (4) selecting faculty members; (5) appointing faculty members; (6) preparing the budget; (7) approving the budget.

Bird's investigation covered 36 state universities, and the sources of data were official catalogues and announcements of these institutions; by-laws, rules, and regulations of these universities; proceedings of university associations; books, magazines, articles, and reports dealing with the problem of policies, control, and administration; returns from a questionnaire; and visits to universities.

His findings upon the seven topics of investigation listed above were, briefly stated, as follows: (1) that the faculties regulate requirements for admission, with the exception of rare statutory provisions; (2) that there is no interference by presidents or governing boards regarding the faculty's powers to determine curricula; (3) that requirements for degrees are always determined within the university itself; (4) that selection of faculty members is made by the heads of departments and deans of each department, school, or college and that the official appointment comes from the president as the executive officer of both faculty and board, showing that the president stands between the board and the faculty and is the executive officer of both; (5) preparation of the budget is the cooperative work of department heads, deans, and presidents and its approval is by the president and the board of trustees in all but one institution where approval by a university council is required.

In general summary the author states his conclusions under the concepts of internal *vs.* external control, the former designating control by the faculty, the latter, control by governing boards. He finds that the faculties and their officers determine policies governing admissions and curricula in all institutions studied and that they determine policies governing degrees in all except one of the institutions. They help in the selection of faculty members in all but one and assist in the actual appointment in five of the universities. This he calls internal control. Under external control, he finds that university presidents do not assist in determining policies governing admissions, nor in prescribing curricula, and in only one institution as to governing degrees. The presidents cooperate in the selection of faculty members in 23 of the 36 institutions studied and actually make the appointments in all. They assist in the preparation of the budget in all the universities and actually approve it in all but one case.

Summarizing briefly, it is thus seen that policies do not happen spontaneously or arbitrarily, but develop through a gradual process wherein both faculty and president participate.

These two studies of Katzin and Bird should be sufficient to reassure academicians who ever since the Middle Ages have conducted much disputation upon the age-long topic of "academic freedom."

HISTORY OF THE FACULTY OF ARTS IN GERMAN UNIVERSITIES

A research study under this title having important bearing upon present tendencies in the development of our American system of higher education was made in 1936 by Dr. Hans Nabholz, now at Rutgers University. The purpose of this investigation was to give a detailed description of what happened to the arts faculty in German universities from the time of its origin in the Middle Ages until its disappearance from the universities in the sixteenth century. It was at this time that the function of the faculty—which had always been preparatory to higher education—was taken over by the German secondary school, the gymnasium. The chief findings of this research can only be briefly tabulated here. The quotations which follow are chosen from the official abstract of the thesis.

"The faculty of arts embraced an almost unlimited field. Theoretically it was divided into two parts: the trivium, consisting of grammar, rhetoric and dialectic, and the quadrivium with arithmetic, music, geometry and astronomy. But the division was not followed in a slavish manner. The study of dialectic had developed into that of philosophy ever since the addition of Aristotelian studies; and philosophy occupied most of the faculties' time and energy."

"Independent subjects were listed alongside with philosophy. Especially in the fifteenth, sixteenth, and seventeenth centuries, masters were called to the faculty for instruction in such subjects as mathematics, Greek, Latin, Hebrew, history, political philosophy, etc. This trend is significant for the transition from dialectic proper to individual subjects, and the evolution of the faculty of arts, preparatory in function to that of philosophy."

"The faculties of theology, law and medicine were known as *"majores"* or *"superiores,"* in contrast to the arts faculty, which was occasionally referred to as *'facultas inferior.'* This term did not denote inferiority in quality. It stressed the preparatory function of the faculty. . . . Graduation from the arts faculty was not an absolute entrance requirement for the superior faculties, although it was highly desirable. . . ."

"The all-round scholar was the ideal of the middle ages. Hence the arts faculty did not have specialists who were teaching the same subjects year after year. All masters were expected to be well enough versed in all branches to teach them, from grammar, rhetoric, to astrology, music and metaphysics."

"The philosophical faculty succeeded to the traditional form and organization of the arts faculty, but its main function gradually was taken over by the gymnasium which fell heir to the subject matter and function of the undergraduate division of the old arts faculty. In a steady development, by 1834, the Gymnasium had achieved a monopoly as sole preparatory institution for the universities, which it kept until the beginning of the twentieth century."

"The fundamental difference between the gymnasium and the faculty of philosophy lies in their respective functions. The objective of the gymnasium may be summarized as: the giving of a thorough and scholarly preparation of a general nature which enables its graduates to participate successfully in specialized studies in the field of professional education. The philosophical faculty, on the other hand, sees its objective in educating its candidates for certain professions such as teachers in secondary schools, chemists, physicists, etc."

"In their final analysis the arts faculty of the medieval German universities, the upper forms of the modern gymnasium and the American junior college are closely related to each other, in as much as the preparatory function is their outstanding characteristic and they constitute the final period of general education."

To the present reviewer, this is the type of research study that shows the practical value of the historical method in interpreting present tendencies in American higher education. If it could be understood that societal evolution, as a concept, is just as important as an interpreter of present tendencies in its field as biological evolution is in its realm, we should have fewer overheated educational and social reformers who are quite fluent in writing prescriptions for new social orders, unimpeded by any knowledge of historical tendencies that make their prescriptions impossible of achievement, even if they could be proven to be desirable. Taking, for example, the development of secondary and higher education in Europe during some nine or ten centuries as a basis of prediction regarding American education, we would look forward to the development of a longer period of secondary education, a later accession of higher education, and, as a result, a rather complete reorganization of our present system of college and university education.

STUDY OF THE CHURCH-RELATED ARTS COLLEGE

A further study bearing upon changes affecting our American system of higher education was made by Dean Charles A. Baugher of Elizabethtown College, Elizabethtown, Penn., who, in a doctoral thesis at New York University, *A Determination of Trends in Organization, Finance, and Enrollment in Higher Education in Church-Related Arts Colleges Since 1900,* investigated trends in organization, finance, and enrollment in church-related arts colleges. His investigation dealt with trends since 1900, and the thesis was written in 1937.

His chief conclusions may be stated as follows: (1) There has been a general trend away from church support, church control, and church interest in these colleges; (2) This trend away from church and hence toward secular influence has manifested itself in the personnel of the Boards of Control, in the amount of financial support coming from the church, and in the student enrollment; (3) One effective cause of this secularization of these church-related colleges was the policy of the Carnegie Foundation relative to grants of money to colleges. Dr. Baugher says: "The conditions upon which Andrew Carnegie gave his gift for the establishment of the Carnegie Foundation for the Advancement of Teaching, have undoubtedly had a profound effect upon the church-related college. Mr. Carnegie asked the trustees of the Foundation to withhold grants from this fund from all institutions which require a majority of their trustees, teachers, or officers to belong to a religious denomination." And again: "Only those colleges which could testify that their charter did not affiliate them in any way with any particular denomination were regarded as eligible to receive aid from the Foundation." It was inevitable that such a policy would greatly influence the personnel of boards of control and other features of the church college.

EDUCATION FOR THE PROFESSIONS

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BUSINESS EDUCATION

Trends—The strongest trend in business education during 1940 was the increased interest in consumer education on all levels of business training. In some of the secondary schools on the West Coast, consumer business courses are said to be taking the place of some of the vocational business courses.

The National Council for Business Education has been reorganized. Prof. F. G. Nichols, as president of the Council, has been instrumental in the establishment of an administrative board of 24 members elected by the 40 associations that belong to the Council. This board will meet at regular intervals to consider important problems and develop policies.

The National Office Management Association of the National Council for Business Education sponsors National Clerical Ability Tests. During 1940, more than 6,000 tests were attempted by approximately 3,000 testees. The individuals were graduates of public or private business schools, and the tests were given in 53 centers throughout the United States. Eight different tests were available, dealing with stenography, typing, bookkeeping, machine transcription, machine calculation, filing, general information, fundamentals. The tests are conducted by local committees consisting of employers and business educators.

Business education terms are being carefully defined under the direction of a committee of the National Council for Business Education with Prof. R. G. Walters as chairman. The definitions will be published in the educational dictionary to be issued by Phi Delta Kappa. Prof. Carter V. Good is chairman of the committee in charge of preparation of the dictionary.

Courses on the College Level.—A committee of the National Council for Business Education is cooperating with the Committee on Cooperative Curriculum Planning in the development of business education courses. The tendency to postpone some types of vocational business training, now being given on the secondary school level, until the junior college period or the first two years of four-year colleges, is due to the gradual increase in the age at which employment is apt to be obtained. Many students enrolled in post-high-school secretarial training courses have erroneously anticipated an increased demand for their services because of the National Defense Program. There is an adequate supply of clerical workers.

State Universities.—The majority of state universities offer special courses for training business teachers, according to a study by Prof. Earl Clevenger. In the five states—Connecticut, Massachusetts, Rhode Island, New Jersey, and New York—that do not have state universities, some one or more, of the institutions have programs for teacher training.

In 34 states the publicly supported universities award a bachelor's degree to those who successfully complete the curriculum for business teachers. Ten universities award the master's degree for students majoring in business teacher training, and two state universities give the doctor's degree for candidates majoring in business teacher training.

In about half of the teacher training institutions the business teacher training courses are offered by the college of education. In other instances it is offered by the college of commerce, or by both the college of commerce and the college of education. The majority of the states expect increased enrollments in business teacher training courses.

Distributive Education.—The George-Deen Act became effective July 1, 1937. The fiscal year ended June 30, 1940 was the third year of the operation of the distributive education program. Dr. B. Frank Kyker, of the United States Office of Education, reports increased enrollment in part time and evening classes and the extension of the program to smaller centers and to workers in smaller businesses. Employers, employees, and educators have gained an increased knowledge of the program and a better understanding of its benefits. Trade associations concerned with problems of distribution have cooperated to a greater extent than formerly with the program.

During 1940, classes were organized in 981 towns and cities and approximately 127,700 individuals were enrolled in these classes. This enrollment was 44 per cent higher than the enrollment during the fiscal year 1939. The program was in operation in 47 states, the District of Columbia, Puerto Rico, and Hawaii.

One hundred and sixty-six different kinds of courses were offered during 1940 for workers from 79 kinds of distributive occupations. The courses were varied in nature, as the following titles indicate: "Color, Line and Design"; "Corrective Speech for Sales People"; "Customer Psychology"; "Employer-Employee Relationships"; "Merchandise Control"; "Radio Technique in Advertising"; "Store Record Keeping"; "Windows and Store Display".

Long-range programs have been developed in some of the states. In Tennessee, for instance, a program for those interested in the retail grocery trade has been prepared, approximately five years in length. In Wisconsin, a program of courses for those interested in the retail drug trade has been organized that would require from three to five years to complete.

During 1940, 20 colleges and universities in 18 states offered summer courses to prepare individuals for teaching and supervisory work in distributive education.

ENGINEERING EDUCATION

Professional Development.—The Engineers' Council for Professional Development is interested in improving the selection, guidance, training, and recognition of engineers. The Committee on Engineering Schools of the Council approves both engineering departments and colleges, and curricula. The Eighth Annual Report of the Engineers' Council for Professional Development includes a list of accredited undergraduate curricula, arranged by institutions and arranged by curricula. Six major curricula are recognized by the E. C. P. D., namely, chemical, civil, electrical, mechanical, metallurgical, and mining engineering. At the present time, the accrediting program includes only undergraduate curricula. A total of 125 institutions offer one or more engineering curricula that have been approved by the E. C. P. D.

During the academic year 1939-1940, 17 institutions were visited for the purpose of appraising 32 curricula not previously accredited. During the same period, 70 curricula at 22 institutions were re-inspected to determine whether or not they should remain on the accredited list.

National Defense.—Congress has appropriated $9,000,000 to pay the tuition costs of students enrolling in certain national defense courses. The Federal Security Agency has authorized 64 engineering colleges as training centers, and a total of 25.000 students may be enrolled in the courses. Qualifications for entrance to the courses include the completion of two years study in an engineering school, or the equivalent in training or experience. The courses were due to commence on or about Jan. 1, 1941, and will be offered three or four evenings a week for about 30 weeks.

Trends.—The Carnegie Foundation for the Advancement of Teaching made a grant of $10,000 in 1938 to pay for the cost of a study of factual material collected by the Committee on Engineering Schools of the E. C. P. D. The study was directed by Dr. Dugald C. Jackson, and approximately 2,000 copies of the report were distributed during December 1939 and January 1940.

Standards have been prepared for appraising the curricula in agricultural engineering. The Committee on Engineering Schools of the Engineers' Council for Professional Development ascertained the viewpoint of the American Society of Agricultural Engineers before deciding on what should be included in the program of study leading to a degree in agricultural engineering.

LEGAL EDUCATION

Educational Requirements.—Forty-two states now require two years of college education or its equivalent as a prerequisite to admission to the Bar. The Section of Legal Education and Admission to the Bar of the American Bar Association has, through its efforts, increased the number of states requiring more than high school education from one in 1921 to 42 in 1940. The American Bar Association has set a minimum standard of two years of college work before the individual begins his law course. Thirty-six law schools have established a minimum standard of three years of college study prior to admission, and nine schools, training lawyers, have set up as one of their admission requirements, a college degree. Neither the American Bar Association nor the Association of American Law Schools has prepared any list of subjects that should be studied during the pre-legal course.

The Section of Legal Education and Admission to the Bar has been successful during 1940 in preventing the passage of the Sheppard Bill. The sponsors of this bill state that its enactment would prevent discrimination against the graduates of certain law schools in selecting individuals for government legal positions. In the opinion of the Section of Legal Education, it would prevent the Federal department concerned from favoring applicants having completed a four-year college course before beginning the study of law over applicants not possessing that background. The American Bar Association believes that the enactment of this bill would work against their attempts to improve legal standards.

Law Schools.—The American Bar Association during 1940 gave approval to the St. John's College of Law in Brooklyn, the Brooklyn Law School, and the Washington College of Law in the District of Columbia. It has granted provisional approvement to the National University Law School in Washington, D.C. There are at the present time 180 law schools in the United States. One hundred and seven of these schools have been approved by the American Bar Association.

The Section of Legal Education and Admissions to the Bar of the American Bar Association published Sept. 1, 1940 a 15-page pamphlet entitled, *Choosing a Law School.* This publication provides valuable information concerning the cost of a legal education, the pre-legal course, the curriculum, and the standards of legal education adopted by the American Bar Association. It also includes a list of 103 of the 107 law schools approved by the American Bar Association. The schools are listed by states.

Legal Training.—The Council of the American Bar Association has helped to establish cooperating committees on legal education in almost every state in the United States. These committees include bar examiners, representatives from law schools, and delegates from the State Bar Associations. It is the hope of the Council that these committees will result in the improvement of legal education through developing a reciprocal understanding of each of these groups with the other two. Graduates of law schools not approved by the American Bar Association are not usually permitted to take the bar examination in 22 states. In six of these states, special exceptions are made for the graduates of certain non-approved law schools.

Post-Admission Legal Education.—The American Bar Association sponsored over 200 legal institutes during 1940. These institutes were held in 23 states, and approximately 25,000 lawyers received some advanced training for their profession at these institutes.

MEDICAL EDUCATION

Preliminary Education.—Only five state medical licensing boards do not require two years of college training for admission to approved medical schools. In addition to the 43 states, Alaska, Hawaii, and Puerto Rico also insist on two years of college training before entrance to medical schools. The American Medical Association recommends three years or more of college education before beginning the study of medicine, and some of the medical schools require graduation from an approved four-year college of all applicants for admission.

The Internship.—The Council on Medical Education and Hospitals of the American Medical Association has approved for internship 750 hospitals. At the 1940 Congress on Medical Education and Licensure, the question was raised by Dr. Fishbein as to whether the care of the sick should be considered the chief function of a hospital or the teaching of interns. Twenty-two states, Alaska, the District of Columbia, Puerto Rico, and Hawaii require a period of internship of all applicants for medical licenses. Thirteen medical schools in the United States require internship as one of the standards to be met before the medical degree is awarded.

Licensure.—The percentage of candidates failing state medical examinations was 16.3 during the year 1939. The fact that the percentage of failures has increased during recent years is due to the fact that many graduates of foreign medical schools have attempted the examinations. In 90 cases graduates of foreign faculties of medicine were licensed during 1939 by approval of their credentials without examination. Twenty-one states require full citizenship and 12 states require first citizenship papers before the individual is permitted to take the state examinations. Thirteen states have ruled that individuals holding foreign diplomas or transcripts are ineligible for licensure. They base this ruling on the difficulty of correctly appraising such credentials. The National Board of Medical Examiners was founded in 1915 to establish a standard of examination and certification of graduates in medicine for the United States and its territories. The certificate issued by this Board is accepted by 43 states, the District of Columbia, and four territories. The number of individuals taking the examinations has increased until in 1939, 3,217 persons were examined by the Board.

Enrollment and Graduates.—During 1939, 6,043 physicians were licensed to practice medicine. One hundred ninety-five graduates of unapproved schools were granted permission to practice in a total of 13 states. During 1938, there were 9,527 individuals granted the right to practice medicine for the first time. During 1940, there were 77 approved medical schools in the United States, enrolling 21,271 students and graduating 5,097 persons. The number of women students and women graduates in proportion to the total number of individuals studying medicine remained approximately the same as during 1939, with 5.4 per cent of all students and five per cent of all graduates, women.

NURSING EDUCATION

National Defense.—A Nursing Council on National Defense was organized during 1940, including representatives of the American Nurses' Association, National League of Nursing Education, Association of Collegiate Schools of Nursing, National Organization for Public Health Nursing, National Association of Colored Graduate Nurses, and American Red Cross Nursing Service. The military requirement for the year June 1940 to June 1941, will be about 4,000 nurses. Other needs indirectly due to national defense will probably require 2,000 nurses during the same period of time. The Council plans to encourage at least a 10 per cent increase in admissions to nursing schools in order to meet the increased demand. Five per cent of this increase is primarily for national defense and five per cent in order to meet demands for hospital and private nursing services. Part of the plan is to request a carefully selected group of nursing schools to expand and attempt to secure state and Federal money to make their expansion possible.

National League of Nursing Education.—The first list of schools accredited by the N. L. N. E. will be published early in 1941. This list will be based on surveys of 120 institutions providing training for nurses. During 1940, 1,302 schools of nursing met the minimum legal requirements. The number of student nurses graduated during the year was 23,600.

Public Health.—The number of positions available for graduate nurses with training in the field of public health continues to increase. There were employed during 1940 23,705 public health nurses. The National Health Program and the Social Security Act have provided additional positions, especially in the fields of maternal health, orthopedic service, and the control of social diseases. During the past four years approximately 3,000 public health nurses were granted stipends and tuition by the Social Security Agency.

Association of Collegiate Schools of Nursing.—The membership of the Association includes 26 schools or departments of nursing connected with colleges or universities which offer courses in nursing leading to degrees. Many nursing schools are endeavoring to affiliate with a college or university. Fifty-five schools of nursing offer both a three-year basic program leading to a nursing diploma and a five-year program leading to a nursing diploma and a college degree. Twenty schools of nursing offer only a program of studies leading to a nursing diploma and a college degree.

Whereas, the majority of nursing schools require only graduation from high schools for admission, 27 nursing schools require one year of college work, seven insist on two years of college, and two accept only college graduates.

Eighteen colleges, in 1934, included departments of nursing in their organization. At the present time, 47 collegiate institutions maintain nursing education departments.

PUBLIC ADMINISTRATION

Colleges and Universities.—The Committee on Public Administration of the Social Science Research Council in the fifth annual edition of their survey of programs and courses for public administration, reports that 16 more institutions of higher education have joined the group of those already offering courses in public administration. Seventy-three colleges offer a major, or a special program, for those desiring to secure training for public administration.

The Committee on Public Administration will publish in 1941 *Education for Public Administration.* The graduate instruction program at 16 important institutions in the social sciences, in preparation for public administration, will be described in that volume.

Government Management.—The Department of Government Management of the University of Denver provides graduate training in government management for individuals receiving scholarships from the Alfred P. Sloan Foundation. The first class of graduates completed their work in March 1940, and all of them obtained positions. Their theses consisted of reports and recommendations on administrative audits of rural counties and small cities in the western part of the United States. The training program was six consecutive quarters of graduate work.

During the summers of 1939 and 1940 an experimental program in citizenship education was conducted under the leadership of Dr. A. D. H. Kaplan, Director of the University of Denver Department of Government Management. A Citizen's Conference was organized and held at Estes Park, Col. for a five-day period during the summers of 1939 and 1940. Representatives of many occupations and every economic level were present, along with a group of experts who served as moderators. A large group of educators, executives of civic leagues, and public officials participated in the discussions and observed the methods utilized.

During the winter of 1939-40 a series of 16 professional broadcasts was held with brief dramatizations on governmental problems such as the consolidation of school districts, the place of government in a housing program, and the ear-marking of public funds. The general purpose of both the Citizen's Conferences and the radio programs is to increase the interest and awareness of the average citizen in governmental matters. The radio programs were supplemented by the publication of a series of brief, informative pamphlets.

In-Service Training for Public Employees.—During the school year 1939-1940 more than 33,000 public officers were enrolled in evening and part-time classes in 47 states. Almost 18,000 of these workers studying their occupations were firemen, approximately 8,000 were policemen, and the remaining 7,000 included individuals from several public service occupations.

For the year ended June 30, 1940, in New York State which is not included in the above statement, 28,930 state and local employees enrolled in schools and courses conducted with the cooperation of the Bureau of Public Service Training of New York State.

State boards for vocational education sponsored most of the in-service training programs. In many cases, 40 to 50 per cent of the cost was provided, under the George-Deen Act, by Federal funds. Some states arranged special courses for city officials, highway employees, tax assessors, milk and dairy inspectors, and the like.

TEACHER EDUCATION

The Commission of Teacher Education.—The Commission was appointed in 1938 to serve for a period of five years. It is making a nation-wide study of problems in the education of teachers. Certain school systems, colleges, and universities are making special studies in cooperation with the Commission. State studies are being conducted in Georgia, Michigan, and New York. The activities of the Commission have recently been extended to include an investigation into the needs of colleges for teachers, an appraisal of college teaching, and the work of university graduate schools in lifting the level of college teaching. An additional employee has been added to the staff to direct these studies.

During the summer of 1940 the Commission sponsored a work-shop at the University of Chicago, provided evaluation services for three regional field seminars on American social conditions, and assisted with several summer conferences and local workshops.

Several state-wide conferences were participated in by representatives of the Commission on Teacher Education. Michigan, New York, Ohio, South Carolina, and Kentucky were the states holding conferences on teacher education. A pamphlet is being prepared to give the facts regarding the history, philosophy, and existing scope of the activities of the Commission. The sixth semi-annual meeting of the Commission was held Oct. 27-29. Members of the Commission and local coordinators and administrative officers of the 20 colleges and 14 public school systems cooperating attended this meeting.

The American Association of Teachers Colleges.—In February 1939 the A. A. T. C. adopted minimum standards for graduate work leading to the masters degree in teachers colleges. The standards are similar to those previously established for undergraduate work leading to a bachelor degree, with provisions concerning such topics as admission requirements, standards for graduate degrees, preparation of graduate faculty, teaching load, laboratory school facilities, and financial support. A form has been prepared for teachers colleges offering graduate work. Another form has been printed to be filled out by each faculty member teaching one or more graduate courses. The Committee on Accrediting consists of six members.

The total number of members of the A. A. T. C. is 186, of which 158 are on the accredited list. The number of graduates from 108 teachers colleges in 1939 was 26,354, the largest group reported since the year 1933, when 27,638 individuals graduated from the same institutions.

Teacher Examination Service.—The American Council of Education, through its National Committee on Teacher Examinations has continued a nation-wide examination service which was started in 1939 for candidates for teaching positions. There has been much favorable and unfavorable criticism of these examinations. They require about 12 hours testing time, extending over two days, and a five dollar fee is charged the candidate. The questions are short answer items ("objective" type) requiring multiple choice responses. The examinations are prepared and the papers graded by the Cooperative Test Service. At the present time these examinations are required by 19 of the larger cities. The results are considered along with several other factors in determining whether or not the candidate will be appointed to a teaching position. A permanent file of results will be kept by the National Committee on Teacher Examinations.

Trends.—The greatest problem which confronted the teachers and administrators in public school systems during the year was the relationship of education to the national defense program. In addition to the courses made possible by the prompt and enthusiastic response of public school systems in increasing the facilities available for vocational training, the Federal Government has established shops under the joint direction of the N. Y. A. and the school system in the community where the shop is located.

THEOLOGICAL EDUCATION

American Association of Theological Schools.—Dean Edward H. Roberts reports that six institutions were received into membership in the Association during last year. The total number of accredited theological schools is now 57, with 11 institutions added to the accredited list since the first list was published in 1938. Many of the accredited institutions have made progress during the past two years in removing certain deficiencies or eliminating practices frowned upon by the Association. More liberal support for libraries, requiring a bachelor degree for admission to a course leading to a theological degree, and the encouragement of independent research and reading, are some of the changes which have occurred. Five regional conferences were held during 1939, at which addresses were given and discussions held.

Refugee Scholars.—The Committee on Refugee Theological Scholars of the American Theological Society has received the cooperation of the American Association of Theological Schools in attempting to provide positions for refugee professors of theology. Through the activities of these two groups, invitations have been extended to eight refugee scholars, four of which have been accepted. It is estimated that at least 30 refugee scholars are still seeking positions.

Tests.—A committee on personality and aptitude of the American Association of Theological Schools has considered existing personality tests and have concluded that they are not of help in selecting students for entrance to theological seminaries. The committee believes that such tests may be extremely helpful, if used by a qualified person, as one source of information to use in guiding the students after admission.

The committee was unable to find any aptitude tests which, in their opinion, would assist in the selection or guidance of theological students. It is further suggested that the construction of special personality or aptitude tests for the use of theological schools would be an expensive and difficult task.

Enrollments and Graduates.—The number of students enrolled in accredited schools has been gradually increasing. During the school year 1938-1939, there were 5,724 enrolled in the 46 institutions on the accredited list at that time. The number of graduates is likewise increasing, and 1,319 graduates were reported by the accredited schools for the academic year 1938-1939.

Small Sects.—Although it is estimated that 10 per cent of the 300 independent denominations in the United States include 90 per cent of the church members, there are only eight denominations that have congregations in each of the 48 states. The small sects tend to use the revival technique rather than to emphasize religious education.

TRAINING FOR SOCIAL WORK

Schools of Social Work.—The American Association of Schools of Social Work included 40 schools in its membership during 1940. Under the direction of the Association, a study concerning education for the public social services was undertaken in May 1938, and present plans are for publication sometime in 1941. The passage of an amendment to the Social Security Act in 1939, requiring the selection according to merit of the personnel administering the Social Security Program, has tended to increase the number of individuals seeking training.

Trends.—Although the year 1940 saw some decrease in the number of unemployed due to the national defense program, the demand for trained social workers continued to increase. In many states the turnover of investigators and other types of relief workers has been exceedingly high. The enactment of a law in November 1940, authorizing the placing of Federal employees in 26 Federal agencies on a civil service basis may have as one of its results the dismissal of social workers not possessing the necessary qualifications and their replacement by individuals who have had training for their duties.

There is much speculation as to what conditions will obtain, if and when the national defense program is no longer necessary. Plans are being made to provide for this possibility, but it is believed that regardless of the provisions made, a sharp rise in the number of unemployed may occur. For this reason, and because of the momentum which the program has gathered, there appears to be little likelihood of a decrease in the demand for trained social workers during the next four or five years.

VOCATIONAL EDUCATION*

BY L. H. DENNIS

EXECUTIVE SECRETARY, AMERICAN VOCATIONAL ASSOCIATION, INC.

ECONOMIC ADJUSTMENT SERVICES FOR YOUTH

During the last few years many local, state, and national efforts have been put forth to assist youth in finding opportunities for occupational service and in assisting in their adjustments to them. In this connection, some rather definite national tendencies seem to be emerging. The speed with which some hastily conceived youth services have appeared and expanded almost takes one's breath. Some of these services were created because of emergencies and have been generously supported from the Federal Treasury because the emergencies were recognized as such. With changing economic conditions, a part of these emergencies are now tapering off. The youth services, however, are beginning to develop along some new lines of effort to the extent that many observers are beginning to wonder about the ultimate program of some of these national movements.

The basic philosophy underlying some of the youth movements is not clearly apparent. It is possible that some of the youth services, under separate controls and organizations, may continue to be considered as emergency services and will disappear with the emergency which caused their creation. However, it is equally possible that with the disappearance of the emergency, the youth organizations or controls may redirect youth services into other channels. Herein lies a danger that some overlapping government services may be produced that will actually be in competition with other government services created earlier.

The public almost complacently and even expectantly accepts the spending of billions of dollars of public funds for social services. It will probably continue to do so as long as it seems unnecessary to produce any of these funds locally. It always seems so easy to think we are not paying the bill when the check comes from a distance. Of course, there will eventually be an accounting, an evaluation of costs, a study of overhead charges, and an analysis of the per capita or per unit results of some of these services. Undoubtedly this will, in time, result in a readjustment to eliminate overlapping and duplicating services. There are many who believe that it would be much less painful and much more efficient to make the adjustments now before too many millions have been spent in the development of duplicating services.

VOCATIONAL TRAINING FOR DEFENSE

Fortunately, some of the recent efforts of social service in the field of education have been inaugurated

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without respect to any political implications but with very specific service objectives in view. Such efforts have nearly always rather quickly demonstrated desirable social and economic results. One of the best examples of a public service quickly organized and effectively administered to meet a national emergency is the program of vocational training for industries essential to national defense. Hats off to the educational administrators of this country, the superintendents, the high school and trade school principals, the vocational directors and the vocational teachers, for the direct and efficient manner in which the vocational defense training program was planned, organized, and put into actual operation.

As late as the middle of last June, no requests had been made to educational leadership for any defense training program. When our national defense leaders pointed out the need for an increased number of men trained to serve in industries essential to national defense, Congress immediately responded with an appropriation of $15,000,000 for a program of vocational training for industries essential to national defense. The leaders in vocational education, sensing the coming of this emergency, had prepared for it and were ready. Even before Federal funds had been appropriated by Congress and the appropriations approved by the President, the planning of the vocational program was well outlined. Almost over night, after the signing of the appropriation act by the President, trade schools all over the country, closed for the summer, were immediately reopened. In an incredibly short time, many of them were operating 24 hours a day, operating three shifts, with the "grave-yard shift" or "the dawn patrol," keeping the trade schools ablaze with light as men worked throughout the night shift in their efforts to be retrained for a reentrance into industry.

The men who were enrolled in this vocational training program during the summer vacations were men experienced in industry, but who had been unable, for many months, to work at their chosen trades. These men, by means of refresher, retraining courses, were in a relatively short time rehabilitated for jobs in industry. An occupational adjustment service for thousands was made possible on short notice during a vacation or slack period. There have been no bottlenecks in the development of the vocational training program for industries essential to national defense. This vocational training program is undoubtedly one of the outstanding achievements to date in the defense program activities.

All of this training has been put into operation with educational plants and equipment already in existence and with the program well organized, with an experienced personnel. The per capita costs of the training thus organized and conducted will prove to be surprisingly low because of the use of existing facilities and personnel.

THE LESSONS OF THE DEFENSE PROGRAM

Educators are already studying the implications of the defense training program. They are on the alert, watching to see what lessons may be learned, what suggestions may be obtained which will be of value in the operation of the regular vocational education program designed to assist youth and adults to make satisfactory occupational adjustments and readjustments.

The vocational defense training program has demonstrated, in a remarkable way, the value of setting up specific aims and objectives and methods in an educational program which is to be a functional program.

It has been learned again that vocational training programs (or any educational program for that matter) can be set up in the size doses needed and that all training need not be in standardized traditional terms. It has been emphasized again that training programs are most effective when organized in terms of needs, rather than in accordance with the length of school terms.

Not only has it again been evident that courses may be of any length and be given at any hour of the day or night, but the vocational defense training has again shown the wisdom of having training terms of various lengths to meet the needs of the individuals being trained.

Those who enter these training classes and who have had considerable experience in the trade require a shorter time for retraining than those whose trade experience is more limited. Because of this, men in the retraining program have been placed in essential industries as rapidly as they become ready and as jobs are available.

The vocational defense training program, being financed entirely from Federal defense training funds, has made it possible to disregard school district boundaries with respect to the residence of those being trained.

It is recognized that the preparation for national defense is not merely a local matter, even though local communities and local residents may be very much involved.

It is becoming increasingly apparent, and it has been emphasized by the defense training program, that some method must be found in the various states for designating or creating area schools for vocational training and occupational adjustment or readjustment services. The State of Connecticut already has a system of state trade schools, coordinated with local educational services, that recognizes this situation.

EXPANSION IN VOCATIONAL EDUCATION

The secondary schools have devoted their energies almost entirely to the 14 to 18 year age group. Vocational training for youth, in its early stages, was also largely limited to this younger youth group. The success and effectiveness of vocational training for out-of-school youth and adults has made it clear that public vocational schools of this country have an obligation for service to that whole area of youth, 14 to 25 years of age. For many of the industrial occupations, vocational training will be most effective when serving the older youth group, 18 to 25. Many vocational courses will become, in effect, post-high training programs.

The stabilizing services of the National Youth Administration, during the acute stages of the emergency as it affected youth, has been very generally recognized. This service was created and developed as a relief measure. An apparent recent shift in the National Youth Administration policies, which would convert the National Youth Administration program from a relief program into an educational program, is causing considerable concern throughout the country. It is universally recognized that we can not afford to create and operate two systems of public education with overlapping and duplicating services. It is earnestly hoped by all that the necessary occupational training program for youth will be worked out on a cooperative basis, in such a way that all training will be under the direct supervision and control of public education authorities, in accordance with the expressed wish and direction of Congress.

The secondary schools now face new and enlarged opportunities for service to the youth of this country. Additional post-high youth by the thousands are turning to the vocational services of the secondary schools. Any Federal funds made available for the vocational training of these youth to prevent useless duplication of agencies must be made available through the public school agencies. The educational leadership of our public vocational schools has demonstrated its readiness and willingness and ability to serve, and serve effectively, in providing occupational adjustment service that actually functions to the advantage of the individuals and to the industries needing the services of those so trained.

It is to be hoped that when the present defense training emergency becomes history, we will not find ourselves with several systems of vocational training, under different public agencies, with the systems unrelated.

The general public is rapidly coming to an appreciation of the value of a sound vocational training program. In many cities long lines of applicants have waited at the doors of the public trade schools in the hope they might be admitted to the vocational training classes. Thirteen thousand men applied for vocational training in one city on one day. The public now expects adequate provision to be made for this vocational training. The vocational schools of this country will undoubtedly plan an adequate program that will answer the challenge.

PART-TIME EDUCATION

Striking trends have been evident in the field of Part-Time Education since 1930 with the general drop in enrollment to approximately one-half of what originally had been enrolled in that classification. This is due, of course, to social legislation and to enforcement of minimum wage laws.

Few of those enrolled in vocational schools now range in age from 14 to 16 years, and in many localities many of them are 18 years or older. There is a tendency to postpone vocational education until at least the last year in high school. However, there has been an increase in the growth of the Part-Time Cooperative program to provide training opportunities for smaller communities engaged in that type of vocational education.

The classes are arranged so that the students receive practical training in an occupation and attend the local school the other half day where programs and classroom work are under the direction of a coordinator. His function is to adapt the work of the school to the work of the job. This has been particularly successful because it trains workers in the actual conditions of employment and provides an opportunity for the continuance of their education at the same time.

It is not intended that this should be utilized as the best form of vocational training but it has been successful when it has been used in the smaller communities where no other plan has been effectively developed.

INDUSTRIAL ARTS EDUCATION

Industrial Arts courses now enjoy a peak of acceptance in the programs of elementary and secondary schools, and there is new emphasis at the college level also. Nation-wide increases of space and equipment provided for this work may be noted. More school grades pursue these subjects as a constant, with more and more students availing themselves of this type of instruction under the elective system.

School administrators and boards, as well as parents, have recently recognized new objectives or purposes in connection with Industrial Arts. The older aims of manipulation, exploration, planning ability, accuracy, enrichment and the like still hold. But, it is now understood, additionally, that such courses are selective and foundational for specific trade training, that they constitute real preparation for a host of minor jobs, that they lead to valuable leisure pursuits, and that they excel in developing work and life attitudes of the highest type.

More girls now enroll in industrial courses than was formerly the case and evening classes for non-industrial patrons, both men and women, are in vogue. Moreover, the demand for arts and crafts instruction is reflected in the programs of community houses, clubs, summer camps, and other youth organizations. Home workshops are being arranged by the thousands.

Projects and jobs, individual and group, persist as the basis of method and management, but there is more of informational work of the related and technical kind. More attention is given to design and the number of different materials or media employed has increased markedly in the past five years.

Teacher certification is more strict, supervision is being strengthened, and standards of workmanship and learning are being defined and heightened. Research in the field of more extensive, all-year positions for these special teachers is suggested, and special state supervision seems soon to become universal in the nation. In a word, Industrial Arts Education is an expanding and perfecting service to youth, a curriculum area accepted as never before in American education.

DEVELOPMENTS IN HOME ECONOMICS

Following the recent demonstrations of community programs in family life education in Toledo, O., Wichita, Kan., Box Elder County, Utah, and Obion County, Tenn., other communities have provided more permanent and broader organizations for developing programs in family life that will serve the needs of all age groups. In most states continuing advisory committees of professional and lay persons interested in homemaking education study education problems of secondary school, out-of-school youth, and adult groups.

Cooperative planning by agriculture and homemaking teachers has resulted in joint classes for boys and girls in which background is secured for projects planned and carried out by brothers and sisters often with the cooperation of other family members. Other schools have developed homemaking courses for upperclass boys and girls in which personal and family problems of common concern are discussed.

Representatives of government agencies, working with families for the solution of their financial and social problems, have discussed common problems with homemaking teachers and supervisors. Cooperative study of common problems has resulted in a bulletin *Credit Problems of Families* prepared by the Farm Security Administration and the United States Office of Education and published by the latter agency.

As the need for teachers to work with professional and lay groups in their communities is becoming more and more evident, pre-service education is being modified. Off-campus student-teacher centers located several miles from the college or university provide for participation in all of the responsibilities of the resident teacher of home economics. The enthusiasm of students is one evidence that this new plan is meeting real needs. The expansion and development of off-campus student-teaching has brought to the fore the need for supervising teachers who have had special preparation for guiding student-teachers.

ADULT EDUCATION

By J. O. Keller

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GENERAL

Two outstanding agencies celebrated anniversaries in 1940. The American Association for Adult Education marked its 15th anniversary at the New York meeting in May with a program of distinguished leaders. The second such conference occurred when the National University Extension Association celebrated its Silver Anniversary at the University of Michigan, also in May, with its president calling for a program of action by 53 member institutions in the new 25-year period ahead.

The early part of the year saw program after program of adult teaching dedicated to education for citizenship and the democratic state. In the latter part of the year, with Europe engaged in war, practically all programs of the various agencies were influenced by national defense preparation. These agencies, generally speaking, took a stand for total preparation for the national emergency in which human values and military needs would be considered together. Many adult education programs and projects are now carried on which did not exist 15 years ago. These programs are chiefly characterized by their informality, by an earnestness to understand on the part of different groups served, and by the varied nature of the individual programs. On the whole, the programs grow out of, and operate closely to, the interests and life situations of the groups served. All agencies constantly find need for trained educational leaders. State associations for adult education find this topic to be perennial. Several agencies have carried on experiments in the training of adult leaders such as the Denver Workshop set up by the Denver Adult Education Council in cooperation with the Universities of Colorado and Denver. The University of North Carolina earlier published a correspondence course in principles and methods in adult education. There is also the experiment conducted during the summer in the Adult Education Workshop in Claremont Colleges, California. The need for better instruction materials for adult use is constantly evident at every educational level.

An educational bill (Harrison-Thomas Bill, S. 1305) had been introduced, a portion of which called for large Federal grants in support of general adult education. It lay before the Congress during the year without receiving consideration. Its provisions followed largely the recommendations of the President's Advisory Committee on Education.

WPA EDUCATION AND RECREATION

The educational activity of the Works Progress Administration had its genesis in the depression situation where large groups of persons with enforced leisure time were in need of opportunities for training and study. On the relief rolls also were thousands of unemployed teachers (Alderman Report, May 1, 1940) many of whom had been professionally trained. Besides giving jobs to these unemployed teachers, the program also offered opportunities for instruction in every community. Many shortcomings characterized the program. It was hamstrung by regulations making it difficult to do a professional job; provisions were generally lacking for an adequate teacher training program, very badly needed; and in certain instances accusations were made that the program was not carried on above the realm of political influences.

The program, however, had its bright side. It provided teacher rehabilitation; its nursery school program gave practical demonstration of the need for pre-school educational facilities for low-income families; the movement was set up in terms of adult interests and originated in the educational needs of the people. Characteristic were its literacy programs in which over 1,000,000 persons were taught to read and write; its classes in parent education and homemaking; its groups studying arts and crafts, making for more profitable use of leisure time; and its instruction in health, safety, and workers education for low-income groups. While the shortcomings of this program have not permitted it to reach its larger potential development, nevertheless the whole experiment has been a large-scale demonstration that thousands of adults have an enthusiasm for learning and indicating the need for the establishment of a soundly organized and well administered program carried on with techniques similar to those which the cooperative agricultural extension service has used so successfully. The present leaders of the movement are striving for more and better teacher education. Effort is also made to integrate its educational offerings with those of other community agencies.

Again WPA has demonstrated that the development of recreational services and facilities lag far behind increasing requirements of potential participants. While WPA construction programs provided extensive additions to community recreation facilities through construction of new parks, playgrounds, athletic fields, swimming pools, and other facilities, the WPA recreation section provided leadership and supervision in community projects by using professional and white collar workers. This program gave experience in group leadership and is tending toward development of community recreation programs on a more permanent basis. A current report, *Community Recreation Programs,* WPA. Feb., 1940, indicates WPA community recreation programs to be in operation in over 7.000 communities ranging in size from rural villages to large urban centers. While recreation programs are generally recognized to be a community need by the average individual citizen, the movement has lacked impetus until this time.

CIVILIAN CONSERVATION CORPS

The 1940 report of the CCC states that the average age of enrollees is approximately 18 years. The educational programs exist for the purpose of preparing men for employment and citizenship by means of actual work projects or related training. During the year emphasis was placed on guidance programs. Training generally has been of a vocational nature with camp jobs purporting to prepare enrollees for outside employment. Instruction has also been given which would tend further to reduce illiteracy. The number of companies has remained approximately the same.

FEDERAL FORUM PROJECT

While many agencies, including universities, public schools, WPA and others, are employing this device, nevertheless the Federal Forum Project of the U. S. Office of Education using emergency funds attempted in selected areas to stimulate local development in the hope that it would result in permanent organization for continuance of forums.

During 1939-40 the Project operated in 13 states in cooperation with state universities or state departments of education. In each instance a state forum counselor was provided and large numbers of people participated in the program, indicating considerable public interest in adult civic education. Several communities have continued the forums started by demonstrations thus provided. The war situation has resulted in a concentration of attention on national defense problems. In some instances university extension has provided loan package libraries containing information relating to specific requests. The Wisconsin Extension Division in the past year alone sent out over 10,000 such packages to 1,000 communities in Wisconsin. At the close of the year the Project lacked sufficient funds to continue the program.

LIBRARIES

Adequate library facilities constitute a common need of all agencies in the adult education field whether they be carrying on forums, class instruction, or other projects. Thus, a study (A.A.A.E.-N.U.E.A.) of university extension activities now going on inquires particularly with respect to availability and use of library facilities.

Libraries, however, have not been idle as active agents for adult education. A recent report (Adult Education Board, American Library Association, September, 1940) points to signs of widening interest. The Springfield, Ill. library has a full-time trained director of adult education who, during the year, organized an adult center with over 800 students. A sub-committee of the Adult Education Board of the American Library Association is conducting a preliminary check-up on reactions of readers' advisers to the first several volumes of The Peoples Library with the object of making a thorough evaluation. Reports setting forth needs in CCC and NYA centers for informal education through guided reading have been made. Studies have also been made of the relation of the library to audio-visual education materials. Cincinnati Public Library has published a pamphlet listing reading materials available for use with adults of sixth grade reading ability or less.

Librarians thus recognize their obligation to help build a citizenry enlightened for an enduring democracy; to have a personnel enthusiastic for educational service to adults; to ferret out needs and to dovetail reading services into the many adult education enterprises of the community; to take a fresh look at the materials of adult education, particularly audio-visual materials; and to share fully in the effort for civic education in its larger sense. Librarians can not help but feel the influence of training programs instituted by the Federal Government in the national emergency. Indications are already at hand of demands for books on the mechanical aspects of national defense. Libraries will cooperate to their utmost ability in providing technical material, in some cases supplying traveling exhibits for industrial plants. Lists of technical books, and various publications relative to defense needs will be prepared. In most instances appropriations for defense training classes permit expenditure for library and reference facilities. Provisions for suitable library quarters are generally contemplated in military camps and naval quarters in the enlarged defense organization. Lists of materials on aviation have been much in demand. The increasing importance of relations with Latin America has also had its effect on the nature of demands made on libraries.

UNIVERSITY EXTENSION

In 1915 extension representatives of 22 institutions met at the University of Wisconsin to form the National University Extension Association. In 1940, university extension representatives of 53 institutions celebrated the 25th anniversary of the Association at the University of Michigan. On the latter occasion two institutions were signally honored: University of Wisconsin for its accepting and making effective the Cambridge idea of credit instruction in extension and for initiating many forms of extension service as developed today; The Pennsylvania State College for its early conception that non-credit instruction was worthwhile and for sending out a number of leaders who pioneered the movement in other states.

University extension has helped to break down the isolation of the universities, giving services which are thoroughly democratic in nature. Off-campus teaching may be roughly divided into formal instruction and special informal services. Formal teaching may consist of class or correspondence instruction, credit or non-credit, and the work may be sub-collegiate or at undergraduate or graduate levels. Informal extension services are so diverse that it is impossible to list them here.

During 1940 many extension divisions conducted ground school courses preparatory to flight training instruction for the Civil Aeronautics Board. Some universities such as Chicago and Columbia have experimented on a high plane with various types of lecture services. A half dozen large state universities participated in the Federal Forum experiment. At the University of Wisconsin the so-called "Manitowoc Plan" was further developed in which over 5,000 new voters in 1940 enrolled for discussion sessions. Thirteen hundred meetings were held and 1,000 older citizens participated either as discussion leaders or in a supervisory capacity. The movement, characterized by the utmost in community cooperation, the development of leadership, and an intelligent citizenry among the new voters, is spreading widely.

Short courses at institutions such as Florida and elsewhere for professional and occupational groups have developed to the point where they are accompanied by continuing courses of instruction. Many institutions point to the great increase in enrollments for non-credit courses as being significant. The University of Colorado conducts an interesting experiment in alumni education at Longmont and 25 other communities with 10,000 persons in attendance. Other institutions carry on experiments in radio education, music, and dramatics. Great interest has been exhibited in in-service instruction for teachers, industrial supervisors and executives, local government employees, and other groups. Extension centers at which undergraduate instruction is made available have been more fully developed by certain institutions. The University of Hawaii has begun courses for adult Filipinos. Ohio State conducts a unique Adult Evening School as does also Northwestern University in its University College. The University of Nebraska has pioneered in supervised home study courses for high schools.

During the year there was introduced in Congress a bill (Chandler-Thomas Bill, S. 3950) which would establish and subsidize general university extension on a plane similar to that which has made the cooperative agricultural extension service one of the most effective of all adult education programs. As the year closed, university extension projects were being influenced by the national defense movement. Defense training classes were being organized, lecture and forum projects were being influenced, and many colleges and universities were making correspondence courses available to the U. S. War Department and to the Navy. Under the Engineering Defense Training Program of the Federal Government, the Pennsylvania State College alone undertook to establish classes for 8,000 to 10,000 persons in engineering courses vital to the national defense. Under plans being developed, institutions of higher learning all over Pennsylvania would participate in the program.

AGRICULTURAL EXTENSION

A quarter of a century after the passage of the Smith-Lever Act finds the agricultural cooperative extension service reaching the greatest number of individuals of all the agencies of adult education. This education in agriculture and home-making influenced more than 5,500,000 families in rural America in 1940. Every county of agricultural importance in the United States has its county agricultural agent; one third have two. There are home demonstration agents in over half the counties. This cooperative movement which combines the resources of the nation, state, county, and community and which functions from the agricultural colleges as fountain-heads of instruction, employs a staff of over 7,000 workers. The service makes use of a wide range of informal techniques in bringing about better farming and better living practices in rural communities. Extension agents explain and interpret the various national agricultural programs designed to serve them.

Values in land-use planning assumed new significance in 1940 with the work being intensified in about half the counties in the United States. During the year, more than 500,000 farm people organized, trained, and guided by the extension staff, served as unpaid "local leaders", and 100,000 training meetings for them were conducted. This building of local leadership and its development into an informed and unselfish community service is one of the highlights of accomplishment of this program. Extension programs have been flexible, meeting the changing needs of farm people, and the latter part of 1940 found the service helping local families to understand and participate in the national defense program.

PUBLIC SCHOOL EXTENSION

Public school extension, as is the case with university extension, engages the attention of a wide cross-section of the adult population. Adult educators now are talking more and more in terms of the public school as a community school. The conception of the architectural design of the school building itself is being affected, and during the year there were examples of school buildings being erected with this idea in mind. A study (*Planning the Community School,* 1940, American Book Co.) just completed by Engelhardt and Engelhardt, has brought together the best thought on this subject for administrators, school boards, and architects. The school of the future is thus visualized as being in use 16 rather than six or eight hours a day. Public night schools offer instruction in both cultural and vocational subjects. Much of the program is carried on by night classes formally organized, but the public schools also sponsor lectures, forums, concerts, exhibits, and the like.

Vocational education in the public schools, a federally-aided program, has over 2,000,000 enrollments annually in the fields of agricultural, trade and industrial, home economics, and distributive education. There will be a much heavier enrollment in 1941 as a result of plans for national defense. Large programs in July and August got under way with pre-employment refresher courses preparing many individuals for re-employment, under a $15,000,000 Federal appropriation. In late 1940, with the passage of a bill appropriating millions for educational preparedness, provision was made for continuance of these pre-employment refresher courses; for courses for rural youth, designed to equalize opportunity and to train in mechanical occupations common to the farm but also basic to defense-industry needs; for training of youth under N.Y.A.; and for purchase and rental of necessary facilities.

MUSEUMS

Museums, with their visual media of education, reach hundreds of thousands annually. The 1940 report of the Smithsonian Institution, for example, makes interesting reading for the adult educator. Two and one-half million persons visited the Institution and National Museum during the year. The new National Gallery of Art presented to the nation by Andrew Mellon, is to be opened early in 1941. The Smithsonian Radio program, "The World is Yours," was rated at the top of all non-commercial programs on all networks. The Metropolitan Museum of Art, New York, has an extensive program of free courses, lectures, and informal gallery talks scheduled for 1940-41. The American Museum of Health in New York is a newer institution designed to promote health education. Special circulating exhibits are commonly prepared as museum extension projects. This is typical of the service given by museums, no longer mere repositories of materials, and is a great development, particularly in science education for the people. A project in science education for adults came with the publication in 1940 of *The Layman Scientist in Philadelphia,* a directory of amateur scientists' organizations and resources in science in the Philadelphia area by the American Philosophical Society.

AMERICAN ASSOCIATION FOR ADULT EDUCATION

The American Association for Adult Education forms clearing-house, research and study, experiment and demonstration, and publication functions for the movement. At its 15th anniversary meeting in May its program featured contributions from representative leaders of practically all important adult education agencies.

The Association program at present calls for steps to be taken by educational institutions and agencies to the end that when peace returns our democratic ideal will have been preserved. Steps which the Association proposes to take include: temporary curtailment of the special studies series; encouragement of preparation of better instruction materials for adult use; stimulation of local leaders to form regional, state, and local associations; cooperation with adult education associations of other countries, especially Canada; encouragement of experimentation and demonstration in new techniques and teaching aids; and cooperation with institutions and agencies in the field.

Director Morse A. Cartwright in his Annual Report discussed national conferences in which the Association has cooperated; the assistance given to and results obtained from the Readability Library; the *Journal;* libraries; universities; public schools; forums; workers education; radio; negro education; and other aspects of the movement.

WORKERS' EDUCATION

Considered to be the most important appraisal of the Workers Education Movement appearing to date is a volume published in 1940 as one of the special studies of the American Association for Adult Education (*The Worker's Road to Learning,* T. R. Adam). Mr. Adam tells of the history of the American labor movement and describes projects designed to develop labor education such as the Workers Education Bureau, Brookwood College, WPA, the Affiliated Schools for Workers in Industry (now the Labor Education Service), and experiments made by the universities in cooperation with labor. Some of Mr. Adam's conclusions are that labor must claim its fair share of public educational funds; that "in the forefront of possible state instrumentalities for workers education stands university extension service"; that "labor would be foolish to accept educational instruments below the standard of public universities"; and that since business organizations make use of the universities, why not labor organizations?

Probably no more potent force could be brought to bear on improvement of industrial relations than adult education. Understanding and insight would bring tolerance. Nothing has been more serious in our economy than large-scale unemployment. This problem as well as others, such as maladjustments growing out of technological change, the insecurity of earnings, the competition of sub-standard employers, and the proper division of the net product of industry, should all have the joint study of management and organized labor. Workers education, however, can not be considered as a group movement inseparably linked with the political and economic claims of organized labor.

The program of the Workers Education Bureau of America during the year had three major parts. The Bureau received a $5,000 grant for continuance of institutes in several states for the discussion of labor problems by groups consisting of labor leaders, members of the faculties of state and private universities and colleges, and representatives of industry. Some 16 such conferences have been held with others scheduled. Most notable was the 10th annual one-week labor institute, oldest of its kind in this country, at Rutgers University. The CBS radio program, "Americans at Work," had the collaboration of the Bureau. A pamphlet series bearing on the world crisis has been published. An outstanding job in workers education is credited to the International Ladies Garment Workers' Union which believes in mass education carried on by means of study classes, forums, dramatics, and social activities. Seventeen thousand persons were enrolled for these educational activities in 1939-40. The Union spent a total of $150,000 yearly in promotion of these types of education in a program which also featured such supplementary aids as libraries, health education, institutes, pamphlets, visual aids, and other services.

RELIGIOUS GROUPS

Churches have taken a part in the furtherance of adult education. Church schools have always carried on teaching in their respective denominational fields. Now, however, examples of instruction given in social, economic, and in broader cultural subjects are found.

At the anniversary meeting of the A.A.A.E., representatives of the Jewish, Catholic, and Protestant faiths described the attitudes of their respective church bodies. The director of the "College of Life" of the First Congregational Church in Los Angeles described this four year old self-supporting agency of adult education. Courses are offered today in world affairs, art appreciation, music, literature, foreign languages, family living, and others, totaling 40 courses. Registration in the "College of Life" in 1939-40 totaled over 8,000 persons, 85 per cent of whom were not members of that particular church. The representative of Jewish life pointed out that the Bible enjoins the father not only to teach his son but also to study increasingly on his own account.

In the face of the appalling catastrophe which has engulfed European Jewry, Jews are trying to understand the true nature of this terrific problem and their responsibility in relation to it. Adult Jewish education gives the Jew hope and courage to face the present crisis. A representative of a Negro church in Harlem made the point that the church is the most important institution in the life of Negro people and, therefore, the natural center for adult education programs. The editor of the *Catholic World* dealt with the need of education having a philosophy, and that a philosophy of education must stem from a philosophy of life. The Catholic Church insists that the whole man-heart, mind, soul, intelligence, emotion, all intellectual and spiritual faculties—be developed for complete living.

The work of the Y.M.C.A., Y.W.C.A., Y.M.H.A., and Y.W.H.A. is similar. Representatives of the 1,200 local Y.M.C.A. units at their recent National Council meeting in Pittsburgh declared that their more alert associations are concerned with the teaching of democracy, health and physical fitness, and the relieving of social, racial, and national tensions in our communities. These aims of service to younger adults are fairly typical of this group of organizations.

The National Council of Catholic Women has a study club committee which sponsors such clubs and publishes outlines on subjects such as the family, youth, the social order, industrial problems, religious education, etc. The Catholic University of America has formed a Commission on American Citizenship to sponsor civic education for Catholic youth. President L. S. Lang of the Rabbinical Assembly of America, in a recent survey of 100 congregations, found 25,000 Jewish men and women participating in seminar discussion circles and forums. Programs dealt essentially with Jewish studies but a considerable number considered general cultural subjects and problems of communal activity.

MEN'S AND WOMEN'S ORGANIZATIONS AND CLUBS

Its program of action colored by defense preparation, the American Association of University Women, avowedly an educational organization rather than a mere federation of clubs, is leaving military preparations to the experts. Rather it is said "we must strengthen our democracy so that we may meet the future as a stable united nation . . . this calls for the devoted efforts of intelligent citizens in every community". The Association is a constructive educational force with its 68,000 women college graduates. It is significant that its working program calls for using the training of this adult organization to preserve our way of life now that it is threatened. Specific things urged upon its branches include: cultivation of intelligent public opinion; the guarding of standards of our public schools; watching consumer interests; speeding the adjustment of immigrants; encouraging the spirit of free inquiry; and building toward a renewal of the arts. Ordinarily its study groups delve into the fields of education, international relations, social studies, economic and legal status of women, and the arts with varied community activities growing out of these studies. Twenty-five hundred study groups thus foster the "keep on learning" spirit.

The General Federation of Women's Clubs has as its program a series of educational topics in its thousands of club meetings. The thousands of women reached by these club meetings make the activity of the Federation bulk large in the adult education field. Current events, community problems, citizenship, the home, education, fine arts, international relations, and legislation draw the attention of most local clubs. Both national and state chairmen may be said to do what is virtually a semi-professional job of adult education. The National Federation of Business and Professional Women's Clubs, composed of 1,600 clubs, is currently studying problems which face democracy today, especially as they concern the relationship between business and government and other problems in the economic field. The National League of Women Voters, through its local units, is now carrying on a "Know Your Town" project, the idea being to have its membership through meetings, round tables, and study groups become well informed with respect to the division of government closest to us. The two and one-third million adults in the Congress of Parents and Teachers hold periodic local meetings to discuss and inform themselves with respect to their subject of common interest—youth, its education and welfare, and the home and community influences.

During 1940 the problems of educating for democracy and of "the schools and national defense" received prominent attention. Though this may be a somewhat loosely-bound organization in many communities, nevertheless its common concern for study serves to make it a real factor in the education of a large number of adults. The so-called service and veterans' organizations, such as Rotary, Kiwanis, Lions, and American Legion, all conduct informal activities which serve to shape the education of their respective members.

RADIO EDUCATION

The great influence of radio on attitudes of the adult population is unquestionable. The use made of this powerful instrument, permitting large audiences to be reached simultaneously and instantaneously, by the warring countries of Europe affords ample proof of this statement. Radio is another form of armament. Freedom of speech on the air rates with freedom of the press among our democratic ideals. In general, the large networks in their public service programs have attempted to simplify and clarify problems upon which the people have to make important decisions. The average adult rightly or wrongly wishes his radio program to be interesting and entertaining. Timeliness and liveliness make radio programs attractive. The Town Meeting of the Air, being something of a scrap, tends thus to attract greater interest. The immense popularity of news services and of forums dealing with contemporary affairs indicates an interest that is essential to maintenance of the democratic way of life. The Federal Radio Education Committee has carried on a study of radio listening groups for the purpose of appraising the value of radio education as evidenced by results obtained when listening groups meet periodically for a discussion of particular radio broadcasts.

Some currently outstanding educational developments in radio education are: the cooperation evident between the 27 citizens' organizations and educational institutions and the 17 broadcasting stations which make up the Rocky Mountain Radio Council, an experiment which is receiving nation-wide attention on account of the quality of program material which it has evolved; the University of Iowa offers a course in radio speech and recently held the First Annual Iowa Radio Conference; the University of Minnesota and the Oregon system of Higher Education holding institutes on the educational use of radio; the 11th institute for education by radio held at Ohio State University in April; Syracuse University, Drake, New York University, and the University of Kentucky with their radio workshops; and Oklahoma planning a council similar to the Rocky

Mountain Radio Council. A nationwide hookup of stations employing the Frequency Modulation, staticless system of broadcasting, is forecast for 1941. Only recently the Federal Communications Commission allotted a high frequency radio band exclusively for non-commercial broadcasting. This is an important development because, in employing FM, there is brought to educational service, qualities of faithful sound reproduction and absence of static and of interference from other stations.

The large commercial networks are broadcasting educational programs in which they are trying their best to satisfy the customers. NBC presents in the fall of 1940 "Science Unlimited" in cooperation with the University of California, Stanford University, and California Institute of Technology; "Doctors at Work" in cooperation with the American Medical Association; "I Am an American" in cooperation with the United States Department of Justice; and "On Your Job" in cooperation with the A.A.A.E. The Columbia Broadcasting System presents "Invitation to Learning", the participants being three noted literary critics who set forth thoughts of the world's great men as expressed in their writings; and the "Peoples Platform" to be conducted by Lyman Bryson. The Mutual Broadcasting System has its "Reviewing Stand" under the auspices of Northwestern University and the "American Forum of the Air". Its "Ohio School of the Air" originates on the campus of Ohio State University and is a program designed for children in the primary grades.

COUNCILS—COMMUNITY, STATE, AND REGIONAL

The Pennsylvania State Association for Adult Education is probably a typical state council for adult education. It has 11 departments: adult education councils, education for family living, Federal adult education, leadership education, library and museum service, literacy and citizenship, recreation, school extension service, university extension, vocational education, and worker's education. The purpose of the Association is to establish an organization which will coordinate services of existing agencies, serve as a clearing house, direct research, sponsor needed legislation, disseminate information, and provide continuity of purpose and effort.

During the year there was a distinct trend toward the formation of these state councils of adult education. The A.A.A.E. early believed that one valid method for increasing public consciousness of the importance of adult education was by stimulating the organization of community, county, state, and regional associations. Morse A. Cartwright in his annual report states that no one knows how many adult education councils there are in the United States. He points out that the most highly organized area is the State of New Jersey in which it is known that there are 30 to 40 such councils or community committees. However, councils in the larger-city class he estimates at close to 100. The growth of such councils represents an amalgamation and a united front to the movement.

PUBLICATIONS

The organ of the adult education movement, of course, continues to be the *Journal of Adult Education,* but articles dealing with various phases and trends now find their way into all educational journals. The National University Extension Association publishes a monthly bulletin in which activities of its membership and problems in that field are discussed. The *Proceedings* of its annual meeting form a compendium of information regarding yearly progress of the Association. During the year the A.A.A.E. published as a part of its program of special studies the following volumes: *Motion Pictures in Adult Education* by T. R. Adam, *Training for the Job* by Frank Ernest Hill, *Adult Education Councils* by Ruth Kotinsky, *The Worker's Road to Learning* by T. R. Adam, and *Education for Social Understand-*

ng by Gaynell Hawkins. At the year's end the A.A.A.E. announced publication of a monthly bulletin *Defense Problems* and of *Community Councils in Action,* published at varying intervals.

Some other volumes of particular interest include: *The County Agent* by Baker; *Adult Education in New Jersey* by Leon Brody; *Remedial Reading at the College and Adult Levels* by Buswell; *Community Schools in Action* by Clapp; *Government Support of Workers' Education* by Coit; *Leisure—A National Issue* by Lindeman; *Parenthood in a Democracy* by Lighty and Bowman; *Principles and Methods of Discussion* by McBurney and Hance; *Adult Adventures in Reading* by Morriss; *Decisions and Attitudes as Outcomes of the Discussion of a Social Problem* by Timmons; *Special Problems of Negro Education* by Wilkerson.

NEGRO EDUCATION

By William Anthony Aery

Professor and Director of Education, Hampton Institute

EDUCATION AND DEFENSE

The late Robert L. Vaun, publisher of the *Pittsburgh Courier,* helped to bring into effective action the Committee on Participation of Negroes in the National Defense Program whose representatives, with Prof. R. W. Logan, Howard University, as spokesman, appeared before a Senate Committee on May 14, 1940 and presented a fourfold plan of integrating Negroes into the national defense—general 10 per cent strength of negroes in all branches of the army (except the National Guard, limited to per cent); senior ROTC units in all Negro land-grant colleges; negro officers assigned to combat regiments and use of all four of the regular army regiments of negroes as combat troops. As a result of this effort, H.R. bill 9,850 was amended to provide "that no person shall be excluded from enlistment in any branch of the military establishment on account of race, creed, or color".

Four negro organizations and their representatives attended the Washington meeting, Aug. 5, of the National Co-ordinating Committee on Education and Defense. They were American Teachers Association, Association of Secondary Schools and Colleges for negroes, National Congress of Colored Parents and Teachers, and Conference of Negro Land-grant Colleges. Negroes were integrated into the education-defense effort of 55 professional organizations.

Dr. Robert C. Weaver (*Opportunity,* November) explained the program of the Advisory Commission to the National Council on Defense. "During the summer of 1940", he said, "the U.S. Office of Education initiated a program of vocational education for defense industries. . . . The Federal Government has specifically prohibited discriminatory practices in the expenditure of Federal funds for vocational education of less than college grade. . . . It also stipulates that, where there are separate schools, *equitable* provision shall be made for facilities and training of like quality. . . . Negroes should take full advantage of all training opportunities which are available".

Prof. Charles H. Thompson (*Journal of Negro Education,* October) called attention to the prevailing intolerance and bigotry among many leading white Americans in relation to preparing Negroes to defend their country actively. "The problem," he added, "will not be solved until the Government realizes that real democracy means the complete *integration* of the negro . . . into the total life of America."

To give Negroes a constructive as well as militant role in American life, Negro History Week, Feb. 11-18, was again organized by Dr. Carter G. Woodson, Washington, D. C., who founded (Sept. 9, 1915) the Association for the Study of Negro Life and History. At the meeting of the Association in Chicago, Dr. Woodson reported that extraordinary progress had been made in waking up American Negroes to a new sense of interest in their far-reaching contributions to American life and history.

ELEMENTARY EDUCATION

Virginia.—Dr. Fred M. Alexander, State supervisor of Negro education (Richmond), in "Some Facts Concerning Negro Education in Virginia, 1932 to 1938" (see *Virginia Teachers Bulletin*, January) presented the following data covering elementary education:

	1931–32	1937–38
Dropouts	11%	10%
Failures	19%	14%
Promotions	69%	75%
Enrollment	147,331	134,707
Elementary School Teachers	3,531	3,483
Per Capita Cost of Instruction	$13.27	$16.04
Average Salary	$483	$518

Progress in elementary education, both in Virginia and the other southern states, has been due to the cooperation of white official, negro leaders, and, above all, negro parents. Dr. Alexander presented the following data on enrollment and attendance in negro elementary schools:

	Enrollment	Average Daily Attendance	Per Cent of Attendance
1931–32	160,025	125,510	85
1932–33	160,616	126,308	85
1933–34	160,890	127,378	85
1934–35	161,503	126,423	86
1935–36	160,174	125,890	85
1936–37	158,081	125,862	86
1937–38	154,330	124,974	87

North Carolina.—*State School Facts* (March), published by the State Department of Public Instruction (Raleigh), stated that there were, during 1937-38, some 1,969 negro county elementary schools (white, 1,625) as against 2,190 (white, 2,653) during 1930-31; and 205 negro city elementary schools (white, 258), during 1937-38, compared with 149 (white, 244) during 1930-31. The elementary schools for the whites and for negroes had noticeably decreased—whites, from 880 to 325, and negroes, from 1,094 to 880—especially in the county units. Still the Negroes had, during 1937-38, two to six times as many one-teacher schools as the whites. In the city units the Negro had 6.6 times as many one-teacher schools as the whites. Then, too, only 6.5 per cent of the negro elementary schools were accredited (white, 56).

The North Carolina negro elementary school enrollment for 1938-39 (*State School Facts*, December) was 237,706 (white, 476.392) and was distributed as follows by percentages:

	Negro	White
One-teacher Schools	13.7	2.2
Two to three Teachers	34.6	6.1
Four to six Teachers	18.9	12.1
Seven-or-more Teachers	32.8	79.6

In the county units 16.1 of the negroes were enrolled in elementary schools having seven or more teachers (whites, 74.5); in city units, 80.8 (whites, 94.8). It is, therefore, not difficult to understand why many negro parents leave the country districts to enjoy the advantage of city elementary schools.

The average daily attendance of negro pupils in North Carolina improved as follows: 1930-31, 84.5 per cent (white, 91.0); 1934-35, 89.7 (white, 92.5); 1938-39, 91.0 (white, 94.4). During 1937-38 the United States average daily attendance was 85.8 per cent (*State School Facts*, July).

One of the important problems in public education is to keep pupils in school and have them complete on schedule the curriculum that has been provided at considerable expense. North Carolina, for example, reported (*State School Facts,* August) that four out of each 100 negro children (and 21 out of each 100 white children) graduated from the 11th grade on schedule. There has been, however, a great deal of improvement in the negro schools since 1933-34, the year that the eight-month school term was made uniform throughout North Carolina.

Another index of a state public school system is the school membership that accomplishes a full year of work. North Carolina has been improving this index. In the elementary schools for 1938-39, 73.5 per cent of the negro membership of 221,072 completed a full year of work (white, 84.3)—county units, 71.4 (white, 82.9) and city units, 79.6 (whites, 88.7). Here again the city units offer negroes more favorable opportunities of accomplishment in school work.

SECONDARY EDUCATION

Critical Survey.—The ninth year book of the *Journal of Negro Education* (July), *A Critical Survey of the Negro Adolescent and His Education,* provided a 271-page summary of negro secondary education—definition of objectives, description of formal and non-school agencies, and evaluation of existing schools and their techniques of teaching, supervision, and administration. Some of the major educational problems that face 3,500,000 negroes between the ages of 12 and 24 years were discussed. Included in the term "secondary education" was the whole range of general education which normally encompasses the junior-college level or the first two years of college and which aims at "preparation for intelligent living in a democratic society.

This volume dealt with the problems and needs of the negro adolescent, the non-school agencies for the education of negro youth; and the ramifications of the negro secondary school.

Federal Study.—Dr. Ambrose Caliver, senior specialist in the education of negroes, U.S. Office of Education in *Negro High-school Graduates and Non-graduates* (Pamphlet No. 87, U.S. Government Printing Office, Washington, D.C. 1940), which was a supplement to the Federal report on the *National Survey of Vocational Education and Guidance of Negroes,* presented valuable data for men and women who may wish to understand the occupational status of the products of negro secondary schools and find bases for revising some of the existing programs in these schools.

Some of Dr. Caliver's conclusions are presented. (1) Negro graduates are younger than formerly and occupation for them is more difficult because of their youth. (2) The causes for leaving school follow a fairly consistent pattern—failure in school work, poor health, lack of relation between school work and chosen occupation, dislike for teacher, and lack of interest. (3) High-school graduates have a better occupational opportunity than non-graduates. (4) The large percentage (64.8) of graduates and non-graduates who had no vocational training should be a challenge to school officials and friends of the education of negroes. (5) There is little relation between the curriculum pursued and the occupation of negro high-school graduates and non-graduates. (6) Continuation in high school until graduation appears to lessen the possibility of changing jobs because of occupational maladjustment. (7) High schools should broaden exploratory courses for all their students.

So vital is negro secondary education in giving American negroes adequate status in national and regional improvement that a control committee (L. F. Palmer, chairman) was set up by the Association of Secondary Schools and Colleges for negroes to study workshop technique, problems of curriculum revision, and new administrative procedures. William A. Robinson was given for this pioneer work a six-month leave by Atlanta University. He directed a special summer group of 20 men and women for six weeks, beginning on June 10, representative and progressive secondary school teachers, and administrators who were interested in discussing plans and teaching programs for better types of schools (*National Educational Outlook Among Negroes,* April).

Principal Robinson of the Atlanta University Laboratory School outlined (*Journal of Negro Education,* July) three factors that have been involved in the slowness with which negro secondary schools in the South have increased in number and quality. He said: "The State programs of high school development in the South began before the negro high school existed . . . ; the South approached the idea of affording high schools to negroes with a confused philosophy of education . . . ; and the issue of adequate support from public funds is related to all the other issues and is today the decisive factor in the delay or development in the South of an adequate program of high-school education for negroes . . . The South is unable to finance without assistance, two adequate systems of secondary schools."

This problem was made clear by the following figures, which deal with white and negro secondary schools that were accredited by the Southern Association of Secondary Schools and Colleges for the year 1939-40 (see *op. cit.* p. 481):

State	White Accredited High Schools	Negro Accredited High Schools	Per Cent Negro Accredited High Schools Are of Total in State	Per Cent Negro Population is of Total Population in State
Alabama	68	10	12.2%	27.5%
Florida	120	3	2.4	29.4
Georgia	119	14	1.0	36.8
Kentucky	145	11	7.0	8.6
Louisiana	141	4	2.7	36.9
Mississippi	81	3	3.6	50.2
North Carolina	55	18	24.6	29.0
South Carolina	48	5	9.4	45.6
Tennessee	93	5	5.1	18.3
Texas	245	12	4.6	14.7
Virginia	82	8	8.9	26.8

North Carolina.—There were in North Carolina, during 1938-39, some 1,236 negro teachers employed in public high schools (whites, 5,585); negro pupil enrollment was 36,023 (whites, 160,384); negro percentage in attendance was 88 (whites, 89.1); negro graduates were 3,996 (whites, 23,931). Of the 201 negro high schools, 157 were accredited (whites, 715 out of 745). The North Carolina secondary-school enrollment was as follows for 1938-39; negro, 36,023 or 18.3 per cent; white, 160,384 or 81.7 per cent (*State School Facts,* May).

The secondary-school negro pupils in North Carolina (*State School Facts,* October) made the following accomplishments in completing a full year of work: State, 77.7 per cent (whites, 86.5); county units, 74.8 (whites, 86.2); city units, 81.5 (whites, 87.1). There was direct evidence of the educability of negroes on the secondary-school level.

Virginia.—Dr. Fred M. Alexander (*Virginia Teachers Bulletin,* January) outlined some of the pressing problems of negro secondary education in Virginia. He offered the following data:

	1931–32	1937–38
Dropouts	15%	14%
Failures	18%	13%
Promotions	67%	73%
Enrollment	11,384	19,296
Secondary Teachers	373	586
Average Salary	$751	$848

JUNIOR-COLLEGE EDUCATION

Dean W. H. Martin of the Junior College at Little Rock, Ark. presented (*Quarterly Review of Higher*

Education among Negroes, January) an interesting and comprehensive study, "The Status of the Negro Junior College", which carried forward two other investigations—"The Junior College Movement Among Negroes" by David A. Lane, Jr. (*Journal of Negro Education,* July 1933) and "The Negro Junior College" by N. A. Ford (*op. cit.,* October 1936).

Dean Martin's data dealt with 23 negro junior colleges as of 1938-39, including 22 co-educational institutions distributed through 12 states—Alabama, Arkansas, Florida, Georgia, Kansas, Louisiana, Mississippi, Missouri, North and South Carolina, Tennessee, and Texas.

The enrollment in 19 negro junior colleges was 2,905 (male, 1,036; female, 1,869) or a mean of 153 (male, 54; female, 99). The legal-control distribution was among six denominations—African Methodist, 2; Baptist, 3; Disciples of Christ, 1; Episcopal, 2; Presbyterian, 4; Adventist, 1; or a total of 13 (57 per cent). The legal-control distribution for the remaining 10 institutions was as follows: district or city, 4; private, 3; and state, 3.

In these 23 negro junior colleges there were 224 teachers who held their highest degree, in 16 colleges, distributed as follows: Doctor's 2 (1 per cent); Master's 120 (53.5); Bachelor's 93 (41.5); no degree, 9 (4).

The growth of negro junior colleges was as follows: 1900-09, 1, 1910-14, 4, 1920-29, 15; 1930-39, 23. Seventeen years elapsed between the establishment of the first and second negro junior college. Since 1932 at least eight junior colleges have reorganized as four-year colleges (Georgia, 2; Maryland, 1; South Carolina, 1; Texas, 3; West Virginia, 1); and four came into existence (Western University, Kansas City, Kan.; Lincoln Junior College, Kansas City, Mo., Municipal Junior College for Negroes, Oklahoma City, Okla., and Stowe Junior College, St. Louis, Mo.).

HIGHER EDUCATION

Federal Study.—Dr. John W. Studebaker, U.S. Commissioner of Education, outlined (*Quarterly Review of Higher Education among Negroes,* April) the National Study of the Higher Education of Negroes, which was requested by the Association of Secondary Schools and Colleges (L. F. Palmer, president) and which is being financed by an Act of Congress—$15,000 for 1939-40; $15,000 for 1940-41; and $10,000 for the completion of the Federal study. The project was also endorsed by leaders representing 17 negro land-grant colleges.

Dr. Fred J. Kelly and Dr. Ambrose Caliver, both of the U.S. Office of Education, are in immediate direction of this study, which aims to discover the higher-education needs of negroes throughout the nation, as well as the offerings and their effectiveness of negro colleges and universities.

This Federal survey covers three groups of activities—supplying to interested persons, digests of studies already made; projects, largely social and economic, dealing with the higher-education needs of Negroes; and projects dealing with the curricula, standards, students, graduates, and faculties of negro colleges and universities. It will be evaluative in that facts will be tested by accepted criteria in the fields of education, economics and social philosophy.

Enrollment.—Dr. Martin D. Jenkins, Howard University, in "Enrollment in Negro Colleges and Universities" (*Journal of Negro Education,* April), stated that, as of October 1939, there were 37,830 negro undergraduate resident students in 97 colleges and universities. There were also 13 non-reporting negro institutions. Dr. Jenkins, therefore, estimated that approximately 39,000 negro students were receiving the benefits of higher education. This estimate represented an increase in enrollment of 6.6 per cent over 1938-39. He reported that slightly more than 5,000 baccalaureate degrees were awarded by negro colleges and universities during 1938-39, an increase of 11.8 per cent over 1937-38; that negro women constituted 57 per cent of the undergraduate enrollment and 60 per cent of the graduates from degree courses; that 33 publicly controlled institutions reported an enrollment of 19,776 students, an increase of 4.5 per cent; that 29 per cent of the undergraduate students were enrolled in non-accredited colleges; that 89 per cent of the undergraduate students were enrolled in four-year institutions; and that nine negro institutions offering work leading to the master's degree reported (October 1939) a total enrollment of 629 students, an increase of 31.4 per cent, and conferred 116 master's degrees during 1938-39.

Finances.—Henry G. Badger, associate specialist in educational statistics, U. S. Office of Education, presented a timely and illuminating analysis of the finances of 24 negro colleges and universities for the period 1929-30 to 1938-39 (*Journal of Negro Education,* April). Some conclusions follow. (1) Adverse economic conditions, as shown by reduced per capita income, have not operated to dampen the desire of negro youth for college training. (2) Private philanthropy is still an important factor in negro college financing. (3) There has been an increasing emphasis on the literary and institutional activities of colleges for negroes.

Dr. Badger prepared and published (*op. cit.* p. 163) a table of index numbers that referred to finance items of the 24 negro higher institutions. The figure 100 represented the items for 1929-30. The index figures for a few items, covering 1938-39 follow: income from student fees, 141.7; endowment earnings, 107.3; public sources, 131.7; private gifts and grants, 99.3; expenditures for administration, 136.4; resident instruction, 160.7; research, 26.0; extension, 151.1; libraries, 332.3; operation and maintenance, 175.2; total, 160.2; capital outlay in public colleges, 173.3; teachers colleges, 44.5; private colleges, 56.9; all colleges, 108.3.

HOWARD UNIVERSITY

Howard University, Washington, D.C., of which Dr. Mordecai W. Johnson is president, has often been called "the capstone" of negro education in the United States. Here 10 schools and colleges cover undergraduate, graduate, and professional study. There are at Howard 25 buildings on 55 acres of ground. The entire educational plant is valued at $8,330,000. Howard is a privately controlled, non-sectarian institution, founded in 1866 by Gen. Oliver Otis Howard. It was incorporated by an Act of Congress, passed in March 1867.

The majority of Howard graduates are teachers, while 46 per cent of all American negro physicians and surgeons are Howard trained. Of the nation's negro lawyers, 46 per cent are Howard men. In the field of religion there are 606 Howard graduates. Of the negro holders of master's degree, 49 per cent took their higher degrees at Howard, and 25 per cent of the nation's negro dentists were trained at Howard. The Howard faculty of 300 members includes 40 who hold the degree of doctor of philosophy (see *Brown American,* May).

GRADUATE EDUCATION

Dr. Oliver C. Cox, research associate at Wiley College (Texas), reported that eight of the 17 states maintaining separate schools for negroes had made provision for graduate education of negroes and that legislation for such provision was pending in three states—Georgia, North Carolina, and South Carolina (*Journal of Negro Education,* January).

All the legislation providing for extra state instruction of negroes is based upon the differential cost of public instruction at home and education available to negroes in another state. Kentucky and West Virginia pay the difference in tuition only; Missouri pays full tuition only; Oklahoma pays tuition and transportation to the school selected. Maryland, Tennessee, and Virginia defray differences in cost of living, tuition, and transportation.

Between 1936 and 1938, Oklahoma spent $8,304.70 for 228 fellowships, or $36.42 each; Maryland, 1937-39,

$23,848.68 for 130, or $183.45 each. Some other averages follow: Kentucky, $54.62 for 304 fellowships; Missouri, $91.96 for 279; Texas, $139.68 for 63; Virginia, $74.14 for 517; and West Virginia, $61.33 for 198. The range for grant-in-aid has been from $4.30 to $178.80. The general average for aid to negro graduate students has been $88.33 per student per school year.

Graduate education is provided for negroes at the land-grant colleges of Prairie View (Texas) and Virginia State College for Negroes (Etrick). Since 1937, according to President John M. Gandy, Virginia State College has offered, in its Graduate School, majors in agriculture, education, English, home economics, and science-mathematics.

Of 43 fields of graduate work, education and medicine have been given the preference by negroes. Teachers have been especially interested in graduate education. Dr. Cox recommended the plan of a liberal-arts college for negroes which would cooperate, on certain levels, with institutions for white students. This was in line with the recommendation of the North Carolina commission for the study of negro schools and colleges.

LAND-GRANT COLLEGES

Dr. John W. Davis, president of the West Virginia Land-Grant College for negroes, was the principal speaker, early in April, at the dedication of five new buildings for the use of the Virginia Land-Grant College (Dr. J. M. Gandy, president)—Langston Hall, a three-story brick dormitory for 168 men; Matoaca Community School, a laboratory, elementary school; Simms Industrial Building, a fire proof trade school; Colson Science Hall; Virginia Hall, auditorium and classroom building. Governor Price of Virginia and Dr. Sidney B. Hall, state superintendent of public instruction, were in attendance (*Chicago Defender*, April 12).

Dr. Frederick D. Patterson, president of Tuskegee Institute (Alabama) which is one of the best known negro land-grant colleges, spoke at the Virginia state college commencement and presented diplomas and degrees to 236 graduates. Special honors were conferred upon several negroes who had conspicuously served the nation and negro race—Raymond P. Alexander, outstanding lawyer of Philadelphia; Plummer B. Young, editor of the Norfolk, Va. *Journal and Guide;* and Mrs. Matilda M. Booker, Jeanes supervisor in Mecklenburg County, Virginia.

Dr. William H. Bell, president of Alcorn Agricultural and Mechanical College (Mississippi), presided over the 18th. annual convention of the presidents of negro land-grant colleges, which was held in Chicago, Nov. 12-14. Allying education and business for greater economic progress and more efficient service was the theme of the convention.

HAMPTON INSTITUTE

"Unlike other colleges, the negro colleges, such as Hampton Institute, Howard, and Wilberforce, have the great task of preparing their students to furnish leadership for their entire race," declared Senator Robert A. Taft of Ohio in an address at Hampton Institute (Dr. Arthur Home, president). He continued: "In performing this task, negro schools do a great service, not only to the negro race, but also to the nation as a whole. Without the efforts of negroes themselves, they would not have made this progress, in the cause of which they have contributed leaders to all fields of activity. The Constitution of the United States, indeed, furnishes the basis of this progress, but the progress itself has been accomplished by the efforts of the negroes themselves . . . An institution like Hampton is the only possible means of serving the race problem, which is one of the greatest that faces the United States" (see Newport News, Va., *Daily Press* April).

Prof. Charles H. Thompson (see *Journal of Negro Education,* July) dealt at length editorially with Hampton Institute problems—decreasing income; dissatisfaction of alumni and students; abandonment and merging of units; white majority in administrative and teaching posts; environment for the education of negro youth; negro newspaper criticism; and absence of a consistent salary schedule.

The resignation of President Howe was announced on Feb. 25. It took effect on June 30. On July 1, Dr. Malcolm S. MacLean, dean for eight years of the General College in the University of Minnesota, assumed the presidency of Hampton Institute. President MacLean was inaugurated on Nov. 25. He referred to the enormous untapped resources for the creation of things beautiful that exist among American negroes. Following his inauguration, President MacLean opened a two-day Conference on the Participation of the Negro in National Defense.

TUSKEGEE INSTITUTE

President Patterson declared in Boston (*Chicago Defender,* Jan. 27) that "Tuskegee Institute is an integrating force, designed to bring the negro people to the full stature of American citizenship". He elaborated this idea in an address to the Tuskegee faculty, (*Tuskegeean,* January), adding: "Tuskegee was one of 34 institutions to be invited by the American Council on Education to cooperate in the work of implementing methods, techniques, and practices that had already been revealed through an abundant research . . . We shall make an effort, as we go forward, to have every department and every individual share greater responsibility for the efforts at Tuskegee . . . We should keep abreast of our duties . . . Tuskegee's success has been due in large part to the determination and consecration of its workers."

Tuskegee announced, on April 26, through the Associated Negro Press, that it had modernized Dr. Booker T. Washington's idea of "Learning by doing" and had set up an "industrial internship plan" by which students would be placed in various cities with commercial firms, but would still remain under the direction and supervision of Tuskegee. The students would be rated on manipulative skill, technical knowledge, initiative, cooperation, punctuality, and reliability.

It was announced in February that Dr. George Washington Carver, distinguished negro scientist, who had been discovered and employed by Dr. Washington many years ago, had donated $33,000 to a foundation for the perpetuation of research in creative, agricultural chemistry—a field in which he himself had believed unfailingly and had worked most successfully. Dr. Carver expressed his belief that, through scientific experimentation, men and women of all races could build up the soil and utilize, for the improvement of community life, much agricultural material that is now unused or actually being destroyed through human ignorance or selfishness.

TEACHER EDUCATION

The experience of North Carolina in developing teacher-education programs was typical of much that has been taking place among negroes in the South and in the nation. Nelson H. Harris (see *Journal of Negro Education,* January) reported as follows:

In 1924-25 the training level of negro teachers in North Carolina was below the high-school level. In 1935-36 it was, for 6,790 negro teachers, two and a half years above high-school graduation. In 1937-38 it was, for 6,966 negro teachers, slightly more than three years above high-school graduation. Summer school attendance increased rapidly—1920, 790 enrolled; 1929, 2,596; 1934, 2,834; and 1938, 6,122. North Carolina, however, for 1938-39, had the following distribution of negro teachers (*State School Facts,* January): College, 1 year, 1.6 per cent (white, 0.7); 2 years, 5.2 (white, 2.0); 3 years, 33.7 (white, 13.6); and 4 years, 55.9 (white, 83.5).

Dr. George W. Gore (*In-service*

Professional Improvement of Negro Public School Teachers in Tennessee, published by Teachers College, Columbia University, 1940) offered a sensible, thoroughgoing program of teacher-education—introduction of courses basic to an understanding of American negro life; cooperation of state departments of education with Jeanes supervisors: development of off-campus teaching facilities; and creation of curriculum laboratories. Dr. Gore, by this intensive and scientific study of teacher-education problems of negro teachers in Tennessee set an excellent pattern for the study of educational problems in states that have dual public-school systems.

GENERAL EDUCATION BOARD

Raymond B. Fosdick, president of the General Education Board, announced in June that the foundation, founded by John D. Rockefeller, Sr. in 1902, had granted $265,070,212 in funds for school programs throughout the nation, and that within a few years its remaining $20,132,693 would be entirely exhausted.

The Board's first activities were in the South. It plans to end its career in the South, "where the need is still great and where significant and promising developments are under way." Negro education was vitally affected for good by the Board's final appropriation of $550,000 to provide, until June 30, 1946, for the support of state agents for negro rural schools. These agents began service in 1911 and have been an effective means of improving negro education literally among millions.

In gradually withdrawing financial aid to negro education, the Board has recognized the significance of modern trends—consolidation of private institutions, mergers between colleges of different church affiliations, institutional collaboration as in Atlanta, and willingness on the part of state governments to provide more adequately for the effective education of negroes. The Board announced its new policy of "assisting educational programs more definitely related to the basic agricultural, social, and economic problems of the South in the belief that the removal of the cause of poverty and backwardness is essential to permanent progress."

ROSENWALD FUND

Dr. Edwin R. Embree, president of the Julius Rosenwald Fund (Chicago) issued a 50-page *Review for the Two-year Period, 1938-1940.* Some excerpts follow: "The Fund expended (1938-40) $1,057,201 chiefly on (1) efforts to make rural schools a more vital force in the Southern States; (2) fellowships for negroes and white Southerners; (3) aid in building up a few university centers for negroes; (4) improvement in negro health. All these programs have an indirect bearing on negro-white relationships . . .

"Consideration for the negro rests not merely on the grounds of humanity and charity; it rests on the solid base of enlightened selfishness . . . Negro children are now in school in steadily rising numbers: over 2,500,000 in elementary and secondary schools, over 40,000 in colleges.

"In the South several negro colleges have standards equal to those of their white neighbors. Fisk and Atlanta and Howard are among the educational leaders of the country regardless of race, while Tuskegee and Hampton and, more recently, Fort Valley State College of Georgia, have set fresh patterns in education that are widely copied."

The Fund, during the period 1938-40, had made a general study of rural schools and teachers colleges in the South; had distributed small elementary and high-school libraries to white and negro schools in rural districts; had cooperated with the university of Georgia (Athens) and George Peabody College for Teachers (Nashville) "for the education of supervisors and administrators and for the development of general leadership in rural education;" and had built up a few demonstration centers for preparation of rural teachers. The Fund expended $292,642 on its rural programs and also appropriated $437,000 for work already launched.

For the year 1940, the Fund gave grants-in-aid, averaging $1,500, to 68 Fellows—40 negroes and 28 white Southerners. During the period 1938-40, 96 individuals (50 Negroes and 46 whites) received fellowship aid. The Fund usually sets aside $100,000 each year for this type of educational service in encouraging creative scholarship and professional advancement in arts and sciences, education, social sciences, and areas of study that the changing economic and social order has thrown into prominence.

Over a period of 12 years, the Fund has contributed $120,000 to the race-relations work of the Commission on Inter-racial Co-operation (Atlanta). The payments on appropriations follow (*Review*, p. 44):

	1938–39	1939–40
Present Programs		
Rural Education	$148,138	$143,732
Fellowships	94,138	97,535
Negro Universities	46,500	47,700
Negro Health	75,152	86,779
Race Relations	34,190	28,447
Past Programs (Concluding Payments)		
School Building Program	1,336	125
Negro Colleges	2,000	1,000
Medical Economics	60,000	55,000
Direction and Administration	67,976	66,682
	$529,430	$527,000

CCC EDUCATION

During seven years the CCC turned out 3,000,000 graduates, 10 per cent of whom were Negroes. On April 7, some 30,000 negro youth were in CCC camps, in 27 states, with 152 negro educational advisers. Of the 200 all-negro camps, 95 are in Southern States. Some 4,000 CCC camps had one or more negro enrollers. For negro youth the Federal Government provided 40-odd major types of useful work and a well-balanced daily life.

NATIONAL YOUTH PROGRAMS

Mrs. Mary McLeod Bethune pointed out that the negro NYA survey results were most gratifying and indicated the Federal money had been well invested in negro NYA projects. At the Kentucky State College for Negroes a number of NYA students had been graduated with high honors and others had carried off departmental honors. In Georgia more than 9,000 negro youth had received NYA assistance. Georgia spent $55.500 in wages paid to 563 negro students.

Negro college and graduate students were allotted $100,000 out of the general NYA fund of $26,240,281 to aid them in graduate study afield, when their own states did not furnish facilities.

Aubrey Williams reported that about 82,000 negro youth were included in the national program—40,000 in the out-of-school group; 35,500 in the school group; and 7,100 in the college group. He added: "In the South, we have tried to set up special programs for negroes in connection with NYA agricultural workshops to help them become familiar with animal husbandry, with soils, and with the repair and maintenance of farm machinery.

"Negroes constituted 5.9 per cent of the college group. In the 16 to 24 year age group, negroes constituted 11 per cent. There are 38,538 negro students in colleges, according to the U.S. Office of Education."

NEGRO SCHOOL AT WILLIAMSBURG

Colonial Williamsburg in Virginia celebrated the completion of a $250,000 negro school plant which represented the cooperation of the WPA, $98,044; Mrs. John D. Rockefeller, $50,000; citizens of Williamsburg, $55,000 bond issue; and the General Education Board, $35,000, plus an operating subsidy for five years of $42,000.

LIBRARIES

By Mildred Othmer Peterson

American Library Association

INTERNATIONAL RELATIONS

Europe.—The American Library Association has affiliations or close relations with international library, educational, and civic groups. Before hostilities became intensified, approximately 4,000 books, costing about $9,500, and 370 annual periodical subscriptions, costing $1,600, were sent to Denmark, Eire, England, Finland, France, the Netherlands, Norway, Sweden, and Switzerland by the A.L.A. International Relations Committee through a $60,000 grant from the Rockefeller Foundation for American books selected by and for popular libraries of Europe.

Latin America.—Another Rockefeller grant administered by another A.L.A. Committee is making possible more effective library cooperation between the libraries of North America and Latin America. Four special studies are being made: a study of the distribution of scholarly journals of the United States in Latin America; a study of exchange relations now existing between important libraries of the United States and Latin American governments and institutions; a study of the library collections available in smaller colleges and universities which offer courses on Latin American subjects; and a survey of public interest in Latin American subjects as indicated by book collections and use in typical libraries. A collection of Latin American books, contributed by several Latin American governments has been exhibited at libraries throughout this country during the past two years. To meet requests from Latin America, the A.L.A. Committee on Library Cooperation with Latin America is preparing in Spanish for the general reader a popular short treatise on libraries of North America; and a more detailed description of libraries, their organization, staff and service, for librarians and library school students. A book list, *Latin America: Books for North American Readers,* has been published.

The American Library in Paris continued its regular and war services until just before the German troops arrived, after which its services were somewhat curtailed. Plans for a quiet campaign for funds in the United States have been temporarily discontinued, and the future status of the library is uncertain.

Refugee Librarians.—During 1940 the A.L.A. appointed a committee on Refugee Librarians to assist in handling their problems. Several eastern libraries have provided books for European refugee children arriving in this country. A request has come from the British Library Association for books for England's fighting forces.

China.—Through the Smithsonian Institution and the Library Association in China, American libraries have sent, during the past two years, approximately 25,000 books to 41 college and university libraries in the interior of China.

FEDERAL RELATIONS

Although the Harrison-Thomas bill (see The American Year Book 1939, "Libraries") for Federal aid to education, including rural libraries, was not enacted by the 76th Congress, which emphasized economy, its sponsors promise continued support in the next Congress.

The Federal Government is aiding library extension in several ways. A study of state library agencies is being made by the Library Service Division of the U.S. Office of Education; library extension service is organized in 32 state-wide projects under the guidance of a Federal library section of the Work Projects Administration; and a fourth regional service in the Watts Bar Dam area has been initiated by the Tennessee Valley Authority.

Specific recommendations for Federal and state aid for public library extension and development, particularly in rural areas, was made in the report of the White House Conference on Children in a Democracy, entitled *Children in a Democracy.*

Officers and committees of the A.L.A. have endeavored to keep in touch with the rapidly developing plans for national defense and are cooperating with various governmental agencies in rendering all possible service. The A.L.A. is publishing book lists for aid to those in the military and industrial training programs among which are: *Industrial Training for National Defense, Aeronautic Training for National Defense, Engineering Defense Training, Elementary Books for Industrial Training, Our American Democracy, Democracy: a Reading List,* and others.

STATE DEVELOPMENTS

Public library service increased during 1938-40 through the establishment of 150 large regional and county libraries as compared with the development of only 300 for the 38 preceding years. Organized citizen support of programs for complete, state-wide library service, with local, state, and Federal funds, indicates a continued increase for the future.

The cumulative effect of state aid for county and regional library development is being witnessed in several states and many more plan legislative campaigns for 1941. New or renewed biennial appropriations ranging from $25,000 to $200,760 have been made by Arkansas, Louisiana, Ohio, Pennsylvania, and Vermont.

Additional progress made included Alabama and Florida which began active extension work; Kentucky and Mississippi broadened the powers of their state agencies in connection with authorizing the acceptance of Federal aid; Idaho, Pennsylvania and South Dakota now have professional library executives; and library surveys have been made in Texas and Alaska. During the year, 49 counties in 16 states were added to the number of counties appropriating $1,000 or more for rural service. There are now 451 counties, of over 3,000 counties in the United States, that are making these appropriations.

In Georgia, Tennessee, and Virginia appropriations ranging from $60,000 to $150,000 were made for the purchase of school library books for the year. In the last two states, funds are matched by local funds while in Georgia the state provides two-thirds and the local government one-third.

SERVICE OF ESTABLISHED LIBRARIES

The latest basic statistics on libraries in the United States were given in the THE AMERICAN YEAR BOOK, 1939, "Libraries." Statistics for individual libraries were issued during 1940 in the A.L.A. *Bulletin.* Statistics for college, school, teachers college, and normal school libraries were published in the February issue and public libraries were covered in the April number. These statistics show, for public libraries serving 100,000 to 199,999 population, that the highest city reporting had 71.21 per cent of its population registered as borrowers of the public library while the lowest had 14.48 per cent. The highest circulation per capita was 10.52 books while the lowest was 1.42 books. Throughout the country a slight increase in circulation and library use over the previous year was reported.

ADULT EDUCATION

Libraries continue to show an increasing interest in adult education. There are no startling innovations or marked increases in quantity, but there is little question of increasing concern over the library's responsibilities for informal education. Several libraries during the year added readers' advisory or adult education service divisions and others are doing serious planning toward an expanded and reorganized service. There are also new adult education committees in three state library associations. Several books and articles in professional publications on adult education were sponsored by the A.L.A. Adult Education Board.

SURVEYS AND STUDIES

The A.L.A. completed surveys, during the year, of the state university libraries of Florida and Indiana and is conducting one at the state library of Texas. Surveys of library personnel and training agencies in Michigan and Tennessee have also been published. Several surveys of resources of American libraries are being made by the A.L.A. Board on Resources of American Libraries.

The following are among reports of investigations made which were published in library periodicals: "A Survey of the Reading Interests of the Blind" by Margaret Riddell (*Library Journal* 65:189-192, March 1, 1940); "Teacher College Libraries" by James E. Gourley and Foster Mohrhardt (*Wilson Library Bulletin* 14:662-3, May 1940); and "A Library Poll," by Oscar C. Orman (*Wilson Library Bulletin* 14,416, January; 572-3,587, April; and 739-40, June 1940).

Reports of other investigations conducted in the library field which appeared in the *Library Quarterly* during 1940 are: "An Inquiry into the Statement of Motives by Readers," by Helen L. Butler (10:1-49, January); "Subject Coverage in University Library Catalogs" by Jennette Eliza Hitchcock (10:69-94, January); "Negro Library Workers" by Wallace Van Jackson (10:95-108, January); "Notable Materials Added to American Libraries, 1938-39" by Robert B. Downs (10:157-191, April); "Mechanics' and Mercantile Libraries" by Sidney Ditzion (10:192-219, April); "The Functions of Library Management" by Paul Howard (10:313-349, July); "School-Library Studies and Research 1936-39: a Survey, Critique, and Bibliography" by Willard A. Heaps (10:366-391); "What Young People Want to Read About" by George B. Moreland, Jr. (10:469-493, October); and "The District-School Library, 1835-55" by Sidney Ditzion (10:545-577, October).

LIBRARY TRAINING AND PERSONNEL

Library schools, state library extension agencies, and groups of members of the various state associations and A.L.A. conducted institutes offering "in-service" training and programs to librarians during 1940.

Reports received by the A.L.A. Board of Education for Librarianship for the year from accredited library schools indicated the following: changes in courses at the University of Oklahoma, Carnegie Institute of Technology, University of Toronto, University of Wisconsin, and Drexel Institute; critical testing of the curriculum at Simmons College; a new course on American archival organization and practice at Columbia University; a year curriculum in law librarianship at the University of Washington, Seattle; temporary discontinuance of the advanced curriculum in work with children at Western Reserve University; opening of the curriculum at Drexel Institute to employed librarians who meet admission requirements; recognition by the University of Denver that the work of the library school is of graduate level; adoption by the College of William and Mary and the Virginia Board for Certification of Librarians of a plan whereby graduates of the library school may become eligible for certification for service in public libraries and state supported libraries; announcement of the first award of the Margaret Mann Scholarship, University of Michigan.

The A.L.A. Committee on Fellowships and Scholarships awarded six grants-in-aid for advanced study in librarianship from a fund allocated to it by the Carnegie Corporation of New York. About 40 library schools, educational foundations, and various other groups now offer fellowships, scholarships, grants-in-aid, and loan funds to librarians and prospective librarians.

The A.L.A. Board on Salaries, Staff, and Tenure and its sub-committees have spent considerable time on the preparation of a model scheme of service, and classification and pay plans for institutions of higher education. The latter was studied jointly with the Board's Sub-committee on Budgets, Compensation and Schemes of Service, which was appointed by the Association of College and Reference Libraries, a division of the A.L.A.

GIFTS, GRANTS, AND BUILDINGS

Throughout 1940 libraries were the recipients of many grants, and gifts of books, manuscripts, buildings, additions, and equipment. Material for research will be made available as a result of Rockefeller Foundation grants to Brown University and the New York Public Library for modern facilities for microfilm copying. The Foundation is subsidizing the filming of 35 foreign newspapers currently received at Harvard University. A grant was made to the recently opened Hispanic Foundation at the Library of Congress to aid in the preparation of a catalogue and the development of bibliographical services. An appropriation of $30,000 was made to the American Library Association by the Foundation for studies covering the general fields of relations with Latin American countries.

The Carnegie Corporation of New York completes in 1940-41 its three-year grants to a number of Teachers College libraries for the development of their book collections. Grants for special projects were made by the Corporation to the American Library Association, the Library of Congress, and several other libraries, and a grant of $17,000 was provided to care for Emergency Library Activities dealing with National Defense. An endowment grant of $100,000 was also made to Emory University Library School.

Gifts of unusually valuable private book collections were made during the year. The W. T. H. Howe collection of over 3,000 rare books of English and American literature was presented to the New York Public Library by Dr. Albert A. Berg. Harvard University received from the heirs of William Augustus White an important collection of rare books, and from Philip Hofer a collection of illustrated or finely printed books dating from the 15th century to the 20th century. Governor Henry Horner of Illinois gave his Lincoln library to the Illinois State Historical Library before he died in 1940. The College of the City of New York received from the widow of Prof. Israel Davidson 7,500 volumes of Hebrew medieval literature, regarded as the finest existing collection in that field. The Wagner College Library has received the library of the poet, Edwin Markham. Dr. Archibald Henderson's collection of materials dealing with the life and works of George Bernard Shaw is to go to the University of North Carolina Library.

Gifts for library buildings include a $250,000 bequest from the will of Mrs. Norman Mayer to the City of New Orleans for a public library; $150,000 anonymous gift to Davidson College; $150,000 for a memorial library for Manhattanville College of the Sacred Heart from Mrs. W. J. B. Macaulay; a trust fund of approximately $125,000 for a new branch library, and an additional sum of at least $50,000 to the Denver Public Library from the late Frederick R. Ross.

Gifts and bequests of money for the purchase of books and other purposes were received by libraries in all parts of the country. Among the libraries receiving large gifts were Marshfield, Wisconsin, Public Library; Shelton, Washington, Public Library; Houston, Texas, Public Library; Harvard University; Monticello College; John Carter Brown Library, Brown University; George Washington University.

The Central Building of the Brooklyn Public Library begun in 1912 and rebuilt in 1938-39 at a total cost of about $5,000,000 is now in use. The second floor is not finished and equipment and staff needed for full use of the building are not yet available, but it is hoped that the building will be completed in 1941.

The $2,000,000 Toledo Public Library, constructed with the aid of the Public Works Administration, was opened to the public in the fall of 1940. A 16-storey building has been constructed with Public Works Administration aid for Hunter College in New York City. Two floors house the library with facilities for 325,000 books and 1600 readers.

Work has begun on three large libraries—District of Columbia Public Library of which the first unit will cost approximately $1,000,000; Virginia State Library at Richmond, which will cost nearly $2,000,000, and the $800,000 building for the Joint University Libraries (Vanderbilt, Peabody, and Scarritt) at Nashville, Tenn.

A $500,000 building is under construction in New Orleans to house the libraries of Tulane University, Newcomb College, and Howard Memorial Library, merged under one director.

Among the libraries completed in the fall of 1939 and in 1940 are Rockford College Library, Rockford, Ill.; Southwestern Louisiana Institute Library, Lafayette; Northeast Center, Louisiana State University, Monroe; Skidmore College, Saratoga Springs; University of Wichita Library, Wichita, Kan.; Montana School of Mines Library, Butte; Concord, New Hampshire, Public Library; Kirkwood and University City, Missouri, Public Libraries; Toms River, New Jersey, Public Library; Twin Falls, Idaho, Public Library; Palo Alto, California, Children's Library; Newtonville Branch Library, Newton, Mass.; Park Place Branch Library, Houston, Tex.; Southwestern Branch Library, Washington, D.C., a wing of the Thomas Jefferson Memorial Junior High School; the rebuilding of the second floor and a room to house the Lincoln Collection of Ida M. Tarbell at Reis Library, Allegheny College, dedicated during the 125th anniversary celebration; and the addition of the David A. Howe Reference Halls to the James V. Brown Library, Williamsport, Pa.

AMERICAN LIBRARY ASSOCIATION

Officers for 1940-41 elected at the 62nd annual conference are: Essae M. Culver, Baton Rouge, La., president; Charles H. Brown, Ames, Iowa, first vice-president and president-elect; Ralph A. Ulveling, Detroit, second vice-president; and Matthew S. Dudgeon, Milwaukee, treasurer. Over 3,000 of the Association's 16,000 members attended the conference, which was held in Cincinnati, May 26 to June 1, 1940. The midwinter conference convened in Chicago, Dec. 27 to 30, 1940 and the 1941 conference is scheduled for Boston, June 19 to 25. Headquarters of the Association, which has a staff of 85 persons, are at 520 North Michigan Avenue, Chicago, with Carl H. Milam, executive secretary.

More than 1,000 librarians and library trustees, the largest attendance on record, were present at the Association's annual midwinter meeting Dec. 27 to 30, 1939. The reorganization of the A.L.A. (see THE AMERICAN YEAR BOOK, 1939, "Libraries"), the effects of the European War on libraries, and the proposal of several leading publishers to put into immediate effect a maximum library discount of 25 per cent (see A.L.A. *Bulletin* 34:162, 218, Mar. 1940) were the major subjects discussed. The Council adopted a statement, which was later published as *The Library—1940* (A.L.A. *Bulletin* 34:7, 38, Jan. 1940), following a discussion of the obligations and dangers facing libraries as a result of the war.

During the Cincinnati conference several awards were made. James Daugherty received the 19th Newbery award for his children's book, *Daniel Boone;* Ingri and Edgar Parin d'Aulaire were presented with the third Caldecott award for their picture book, *Abraham Lincoln;* 52 librarians were cited for outstanding examples of library publicity; and the editors of the *Christian Advocate,* *Christian Science Monitor, Scholastic Magazine,* and *This Week* were commended for distinguished service in interpreting the library to their readers. The A.L.A. conferred honorary membership on Dr. Frank Pierce Hill, a past president and member of the Association since 1883, and on Dr. Herbert Putnam, twice president of the Association and librarian of Congress for 40 years. There are now six living honorary members. The Association adopted a new constitution and by-laws, reorganizing its governmental structure, (see A.L.A. *Bulletin* 34:15-26, Aug. 1940), and created a new Committee on Intellectual Freedom to Safeguard the Rights of Library Users to Freedom of Inquiry, an Audio-Visual Committee, and a Committee on Refugee Librarians. It endorsed a proposal to cooperate with other groups and governmental agencies in plans for National Defense.

The total income of the organization in 1939-40 (excluding cash balances, which were $46,268 on Sept. 1, 1938) was $372,086. The largest items of expenditure were for publication of association and professional literature, for carrying out special projects for which grants had been made, and for promotion of professional library education and activities. The A.L.A. endowment is now approximately $2,152,000.

PUBLICATIONS

Six periodicals are published by the A.L.A.: *Bulletin* of the American Library Association, a monthly; *Booklist,* a semi-monthly; *Subscription Books Bulletin,* a quarterly; *Journal of Documentary Reproduction,* a quarterly; *College and Research Libraries,* a new quarterly; and *Hospital Book Guide,* a new quarterly sponsored jointly by the Hospital Libraries Committees of the American Hospital Association and the A.L.A.

Additional A.L.A. publications during the year included: *The Junior College Library Program* (published jointly with Stanford University Press), *Catalogers and Classifiers Yearbook, No. 8, The Library Survey, Subject Index to Books for Intermediate Grades, Subject Index to Children's Plays, Buying List of Books for Small Libraries,* (6th Ed.), *Replacement List of Fiction, Books for Tired Eyes,* (3rd Ed.), *Booklist Books, 1939, Books for Adult Beginners, Teaching with Books* (published jointly with the Association of American Colleges), *List of Books for College Libraries, 1931-38, Manual on the Use of State Publications, Archives and Libraries, 1940, Floors and Floor Coverings, Notes Used on Catalog Cards,* and *Portrait of a Librarian, William Howard Brett,* 4th in the series on *American Library Pioneers.*

Other 1940 publications in the library field were: Thomas R. Adam, *The Worker's Road to Learning* (American Association for Adult Education); Anne Thaxter Eaton, *Reading with Children* (Viking Press); Carleton Bruns Joeckel and Leon Carnovsky, *A Metropolitan Library in Action; a Survey of the Chicago Public Library* (Univ. of Chicago Press); Frank Kingdon, *John Cotton Dana* (Newark, N.J., The Public Library and Museum); Elbert Lenrow, *Reader's Guide to Prose Fiction* (Appleton-Century); Louis R. Wilson, *The Practice of Book Selection* (Univ. of Chicago Press); and Paul Lazarsfeld, *Radio and the Printed Page.*

PERIODICAL PUBLICATIONS

American Teacher
506 South Wabash Ave., Chicago.

Business Education World
270 Madison Ave., New York City.

Child Study
221 West 57th Street, New York City.

Education
370 Atlantic Ave., Boston.

Educational Method
1201 Sixteenth Street, N.W., Washington, D.C.

Educational Record
744 Jackson Place, Washington, D.C.

Industrial Arts and Vocational Education
407 E. Michigan Street, Milwaukee, Wis.

International Journal of Religious Education
203 North Wabash Ave., Chicago.

Journal of Adult Education
60 East 42nd Street, New York City.

Journal of Business Education
512 Brooks Building, Wilkesbarre, Pa.

Journal of Education
6 Park Street, Boston.

Journal of Educational Psychology
10 East Centre Street, Baltimore, Md.

Journal of Educational Sociology
32 Washington Place, New York City.

Journal of Engineering Education
University of Pittsburgh, Pittsburgh, Pa.

Journal of Geography
3333 Elston Ave., Chicago.

Journal of Higher Education
Ohio State University, Columbus, Ohio.

Journal of Negro Education
Howard University, Washington, D.C.

Journal of Physical Education
Dayton, Ohio.

Journal of the National Education Association
1201 Sixteenth Street N.W., Washington, D.C.

Junior College Journal
744 Jackson Place, Washington, D.C.

Library Journal
62 West 45th Street, New York City.

Library Quarterly
5750 Ellis Ave., Chicago.

National Parent Teacher
1201 Sixteenth Street, N.W., Washington, D.C.

National Student Mirror
8 West 40th Street, New York City.

Occupations
551 Fifth Ave., New York City.

Parents' Magazine
52 Vanderbilt Ave., New York City.

Peabody Journal of Education
George Peabody College for Teachers, Nashville, Tenn.

Pitman's Journal
2 West 45th Street, New York City.

Progressive Education
310 West 90th Street, New York City.

Religious Education
59 East Van Buren Street, Chicago.

School Management
52 Vanderbilt Ave., New York City.

School Review
5835 Kimbark Ave., Chicago.

World Federation News
1201 Sixteenth Street, N.W., Washington, D.C.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

American Assn. for Adult Education, 60 E. 42nd St., New York City.

American Council on Education, 744 Jackson Pl., N.W., Washington, D.C.

American Council of Learned Societies, 907 15th St., Washington, D.C.

American Federation of Teachers, 219 Fifteenth St., Toledo, Ohio.

General Education Board, 49 W. 49th St., New York City.

Bureau of Educational Reference and Research, University of Michigan, Ann Arbor, Mich.

National Congress of Parents and Teachers, 1201 16th St., N.W., Washington, D.C.

National Council of Education, Teachers College, Columbia University, New York City.

National Education Assn. of the U.S.A., 1201 16th St., N.W., Washington, D.C.

National Research Council, Division of Educational Relations, 2101 Constitution Ave., N.W., Washington, D.C.

National Society for the Study of Education, University of Minnesota, Minneapolis, Minn.

Public Education Assn., 745 Fifth Ave., New York City.

INTERNATIONAL

Institute of International Education, 2 W. 45th St., New York City.

International Council for the Education of Exceptional Children, 3 E. 25th St., Baltimore, Md.

International Council of Religious Education, 297 Fourth Ave., New York City.

Pan-American Educational Congress, Universidad de Chile, Cosilla 2543, Santiago, Chile.

TEACHERS

American Federation of Teachers, 219 Fifteenth St., Toledo, Ohio.

Carnegie Foundation for the Advancement of Teaching, 522 Fifth Ave., New York City.

Educators Assn., 307 Fifth Ave., New York City.

National Student Federation of America, 8 W. 40th St., New York City.

Students International Union, 522 Fifth Ave., New York City.

Teachers Union, 114 E. 16th St., New York City.

SCHOOLS

American School Citizenship League, 295 Commonwealth Ave., Boston, Mass.

Child Study Assn. of America, Inc., 221 W. 57th St., New York City.

National Assn. of High School Supervisors and Inspectors, State Department of Education, Columbus, Ohio.

National Assn. of Secondary School Principals, 5835 Kimbark Ave., Chicago, Ill.

National Kindergarten Assn., 8 W. 40th St., New York City.

Y.M.C.A. Educational Secretaries Assn., 55 Hanson Pl., Brooklyn, New York City.

COLLEGES AND UNIVERSITIES

American Assn. of Collegiate Registrars, George Peabody College for Teachers, Nashville, Tenn.

American Assn. of Junior Colleges, Little Rock Junior College, Little Rock, Ark.

American Assn. of University Professors, 744 Jackson Pl., N.W., Washington, D.C.

American Assn. of University Women, 1634 I St., N.W., Washington, D.C.

Association of American Colleges, 19 W. 44th St., New York City.

Association of American Universities, Yale University, New Haven, Conn.

Association of Colleges for Negro Youth, Fisk University, Nashville, Tenn.

Association of Land Grant Colleges and Universities, University of Kentucky, Lexington, Ky.

College Entrance Examination Board, 431 W. 117th St., New York City.

National Assn. of State Universities, Miami University, Oxford, Ohio.

National University Extension Assn., Indiana University, Bloomington, Ind.

New England Assn. of Colleges and Secondary Schools, Tufts College, Medford, Mass.

Phi Beta Kappa, 145 W. 55th St., New York City.

PROFESSIONAL EDUCATION

American Assn. of Teachers Colleges, State Normal School, Oneonta, New York.

American Medical Assn., Council on Medical Education and Hospitals, 535 N. Dearborn St., Chicago, Ill.

Association of American Law Schools, Ohio State University, Columbus, Ohio.

Association of American Medical Colleges, 5 S. Wabash Ave., Chicago, Ill.

Section of Legal Education, American Bar Assn., 1140 N. Dearborn St., Chicago, Ill.

Society for the Promotion of Engineering Education, University of Pittsburgh, Pittsburgh, Pa.

SPECIAL EDUCATION

American Assn. to Promote Teaching of Speech to the Deaf, School for the Deaf, Staunton, Va.

American Child Health Assn., 50 W. 50th St., New York City.

American Humane Education Society, 180 Longwood Ave., Boston, Mass.

American Physical Education Assn., 311 Maynard St., Ann Arbor, Mich.

National Assn. of the Deaf, 3633 E. Tremont Ave., New York City.

VOCATIONAL

American Assn. for the Advancement of Agricultural Teaching, Iowa State College, Ames, Ia.

American Home Economics Assn., Mills Bldg., Washington, D.C.

American Vocational Association, 1010 Vermont Ave., Washington, D.C.

National Vocational Guidance Assn., 25 Lawrence Hall, Harvard University, Cambridge, Mass.

Workers Educational Bureau of America, Machinists Bldg., Washington, D.C.

Note: For additional educational societies consult U.S. Office of Education, Washington, D.C.

NECROLOGY FOR 1940

Aage, Prince, of Denmark, 52, Feb. 29.

Abertay, Lord, (Sir Charles C. Barrie), shipowner, 65, Dec. 6.

Adler, Cyrus, Jewish educator, 76, April 9.

Aldrich, Chester H., director of the American Academy in Rome, 69, Dec. 26.

Andersen, Hendrik C., sculptor and painter, 68, Dec. 19.

Anderson, Harold M., newspaper writer and editor, 64, Dec. 26.

Anderson, Mary, actress, 80, May 29.

Arco, Count George von, radio and wireless pioneer, 71, May 7.

Ashbrook, W. A., Congressman, 72, Jan. 1.

Azana, Manuel, former President of Spain, 60, Nov. 4.

Bailey, Sir Abe, mine and racing owner, 75, Aug. 10.

Bailey, G. W., president of the University of Vermont, 64, Oct. 22.

Baker, R. P., sculptor, 54, Sept. 5.

Balbo, Italo, Italian Air Marshal, 44, June 29.

Ball, John, British golf champion, 79, Dec. 2.

Bankhead, William B., Speaker of the U. S. House of Representatives, 66, Sept. 15.

Barnes, G. N., Scottish labor leader, 81, April 22.

Barrere, Camille, French diplomat, 89, Oct. 8.

Barrows, Edward M., author, 53, Dec. 14.

Bates, Granville, actor, 58, July 9.

Beck, Martin, theatre owner, 75, Nov. 16.

Beckham, J. C. W., statesman (Ky.), 70, Jan. 9.

Bedford, Duke of, 82, Aug. 27.

Beer, Thomas, novelist, 50, April 16.

Benjamin, W. E., financier and antiquarian, 81, Feb. 24.

Benson, A. L., Socialist leader and author, 68, Aug. 19.

Benson, E. F., English author, 72, Feb. 29.

Bentinck, Count Godard, Dutch nobleman, 82, Jan. 4.

Bentley, Irene, actress, 70, June 3.

Besredka, Alexander, Pasteur Institute professor, 70, Feb. 28.

Best, Sir M. R., British admiral, 62, Oct. 13.

Besteiro, Julian, Spanish Socialist, 70, Sept. 27.

Billotte, Gen. G. H. G., French soldier, 66, May 28.

Bjorkvall, Kurt, aviator, 35, May 30.

Blan, Bela, play producer, 44, Oct. 21.

Blatch, Mrs. Harriet Stanton, woman suffragist, 84, Nov. 20.

Bloch, C. E., Jewish publisher, 78, Sept. 2.

Blood, Sir Bindon, British general, 97, May 16.

Bonci, Alessandro, singer, 70, Aug. 10.

Booth, Ballington, commander, Volunteers of America, 83, Oct. 5.

Borah, William E., U. S. Senator (Idaho), 74, Jan. 19.

Bordenave, Enrique, Paraguayan diplomat, 50, Jan. 24.

Bostwick, L. A., Rear Admiral U.S.N., 70, Jan. 14.

Bourne, C. H. B., British Air Vice Marshal, 46, Oct. —.

Bourne, Jonathan, former U. S. Senator (Ore.), 85, Sept. 2.

Boylan, W. A., former president of Brooklyn College, 71, July 8.

Bradbury, James, actor, 83, Oct. 12.

Branly, Edouard, French physicist, 95, March 24.

Bremen, Joseph D., character actor, 81, Dec. 10.

Brentano, Theodore, jurist and diplomat, 86, July 2.

Brookfield, Major Gen. Robert M., soldier and educator, 67, Dec. 20.

Brush, M. E., shipbuilder and industrialist, 63, Oct. 15.

Buchanan, Mrs. J. T. (Madeline Sharps), novelist, Sept. 4.

Bunau-Varilla, Philippe, Panama Canal builder, 81, May 18.

Burnett, Brig. Gen., F. C., 64, July 15.

Burwash, Lachlin T., Canadian Arctic authority, 66, Dec. 21.

Bush, Lincoln, engineer, 80, Dec. 11.

Butler, Rev. Mary Joseph, founder of Marymount College, 79, April 23.

Butler, Major Gen. Smedley D., 58, June 21.

Byrne, Rev. E. J., R. C. Archbishop of Dublin, 68, Feb. 9.

Bywater, H. C., British writer on naval affairs, 55, Aug. 17.

Calfee, Dr. John E., educator and author, 65, Nov. 28.

Callistos, Greek Orthodox Bishop, Chicago, Nov. 28.

Calthrop, Donald, English actor, 52, July 15.

Cambridge, Lord Frederick, English soldier, 32, May 28.

Campbell, Marius R., geologist, 82, Dec. 7.

Campbell, Mrs. Patrick, actress, 75, April 9.

Canby, A. H., actor-manager, 84, Oct. 15.

Cantu, Giuseppe, Italian admiral, 67, Oct. 24.

Carewe, Edwin, film director, 56, Jan. 22.

Carlton, Mrs. H. J. (Effie Crockett), actress, composer of "Rock-a-Bye, Baby," 84, Jan. 7.

Chamberlain, Neville, former Prime Minister of England, 71, Nov. 9.

Christopher, Prince, of Greece, 51, Jan. 21.

Chrysler, Walter P., automobile manufacturer, 65, Aug. 18.

Churchill, Berton, actor, 63, Oct. 10.

Clark, Marguerite, actress, 53, Sept. 25.

Clive, E. E., film actor, 56, June 6.

Collins, Eddie, actor, 56, Sept. 1.

Colquitt, O. B., former Governor of Texas, 78, March 8.

Compton, Mrs. Edward (Virginia Bateman), English actress, 87, May 1.

Condon, Frank, humorist and scenarist, 58, Dec. 19.

Connolly, Walter, film actor, 52, May 28.

Converse, F. S., composer, 68, June 8.

Cook, Dr. Frederick A., polar explorer, 75, Aug. 5.

Coolidge, Dane, naturalist and author, 67, Aug. 8.

Cope, Sir A. S., English painter, 82, July 5.

Cooper, Courtney Ryley, author, 53, Sept. 29.

Cortelyou, George B., former Secretary of the Treasury, 78, Oct. 23.

Cosden, J. S., petroleum producer, 59, Nov. 17.

Craigavon, Viscount, Prime Minister of Northern Ireland, 69, Nov. 24.

Cravath, Paul D., lawyer, 78, July 1.

Crawford, Earl of, premier earl, Scotland, 69, March 8.

Crompton, Col. R. E. B., British electrical industrialist, 94, Feb. 15.

D'Arsonval, Jacques Arsene, French scientist, 89, Dec. 31.

Dailey, Joseph, actor, 78, Sept. 23.

Daudet, Madame Alphonse, widow of the French novelist, 93, April 23.

Davidovitch, Ljuba, former Premier of Yugoslavia, 77, Feb. 19.

Davies, W. H., Welsh poet, 69, Sept. 26.

D'Avigdor-Goldsmid, Sir Osmond, Jewish leader in England, 62, April 14.

Dawes, Rufus C., banker, 72, Jan. 8.

Day, Rear Admiral D. C., 69, Nov. 3.

Deasy, L. B., former Chief Justice of Maine, 81, March 13.

Deetjen, Dr. Christian, pioneer in X-ray treatment and research, 77, Dec. 28.

Deneen, C. S., former Governor of Illinois, 76, Feb. 5.

De Schweinitz, Rev. Paul, Moravian Bishop, 77, Feb. 8.

De Tucich, Serge, Bulgarian playwright, 67, Sept. 25.

De Vitrolles, Baron Regis d'Arnauld, French diplomat, 60, Oct. 1.

De Vries, Louis, Dutch actor, March 11.

Dial, Nathaniel B., former U. S. Senator (S.C.), 78, Dec. 11.

Dieterich, W. H., former U. S. Senator (Ill.), 64, Oct. 12.

Dodd, W. E., former U. S. Ambassador to Germany, 70, Feb. 9.

Dolmetsch, Arnold, music collector, 82, Feb. 29.

Dom Pedro, pretender to the Brazilian throne, 64, Jan. 29.

Dornay, Louis, singer, 64, April 12.

Dorpfeld, Wilhelm, archaeologist, 80, April 26.
Dowell, C. C., Congressman (Ia.), 75, Feb. 4.
Douglass, L. F., inventor, 71, Sept. 7.
Dowling, Rev. J. P., R.C. Archbishop, Port of Spain, 79, June 6.
Doyle, Lady Conan, widow of the English author, June 27.
Drossaerts, Rev. A. J., R.C. Archbishop, San Antonio, Tex., 77, Sept. 8.
Dugan, Prof. R. S., astronomer, 62, Aug. 31.
Dugan, Brig. Gen. T. B., 81, April 27.
Dussor de Barenne, Prof. J. G., brain specialist, 55, June 9.
Duveen, C. J., art dealer, 68, July 21.
Eisen, G. A., archaeologist, 93, Oct. 29.
Elbel, Paul, French diplomat, April 9.
Ellerman, Ferdinand, astronomer, 71, March 20.
Elliott, Maxine, actress, 69, March 5.
Emmett, Gracie, actress, 78, June 10.
Erlanger, M. L., jurist and theatrical producer, 83, Aug. 30.
Espalter, José, former Vice President of Uruguay, 70, Aug. 30.
Estigarribia, Gen. J. F., President of Paraguay, 52, Sept. 7.
Ettl, John, sculptor and art teacher, 68, Dec. 22.
Evans, Lizzie, actress, 83, Feb. 16.
Evarts, W. H., actor, 73, June 6.
Faison, Brig. Gen. S. L., 79, Oct. 17.
Farman, Richard, airplane builder, 64, Jan. 31.
Farnsworth, R. P., airplane manufacturer, 38, Feb. 17.
Fauss, D. C., book publisher, 78, July 3.
Faversham, William, actor, 72, April 7.
Fenimore-Cooper, Susan, descendant of the novelist, 83, Feb. 25.
Ferry, Desiré, French diplomat and journalist, 59, Jan. 12.
Few, W. P., president of Duke University, 72, Oct. 16.
Fiermonte, Mrs. Enzo (Madeleine Force Astor Dick), 47, March 28.
Finch, Flora, film actress, Jan. 4.
Finley, John H., educator and journalist, 76, March 7.
Fisher, Prof. H. A. L., English historian, 75, April 17.
Fitzgerald, F. Scott, author, 44, Dec. 21.
Fleming, Brigadier General Adrian S., former army officer, 67, Dec. 1.
Fleming, A. H., lumberman, 84, Aug. 11.
Flipper, H. O., first Negro graduate from West Point, 84, May 3.
Forbes, Mrs. Dora Delano, aunt of President F. D. Roosevelt, 92, July 21.
Forbes, Rev. J. G., R.C. Archbishop of Ottawa, 74, May 22.
Fotheringham, Major Gen. J. T., Canadian soldier, 79, May 18.
Frank, Dr. Glenn, educator, 53, Sept. 15.
Fraser, Mrs. Amorette, woman's rights advocate, 103, Jan. 5.
Freedlander, A. R., painter, 65, June 24.
Frohman, Daniel, theatrical producer, 89, Dec. 26.
Furness, Viscount, British shipowner, 56, Oct. 7.
Gale, Walter, actor, 85, Sept. 25.
Galli, Rosina (Mrs. Giulio Gatti-Casazza), 45, April 30.
Garland, Hamlin, author, 79, March 4.
Garvey, Marcus, Negro promoter, 60, June 10.
Gates, Dr. William, Maya antiquarian, 76, April 24.
Gatti-Casazza, Giulio, conductor, Metropolitan Opera, 70, Sept. 2.
Gaunt, Sir Ernest, British Admiral, 75, April 20.
Gauthier, Rev. J. A. G., R.C. Archbishop of Montreal, 68, Aug. 31.
Gibson, E. W., U.S. Senator (Vt.), 68, June 20.
Gilman, M. R., ethnologist, 72, July 25.
Gilmour, Sir John, British statesman, 63, March 30.
Glennon, Rear Admiral J. H., 83, May 30.
Goldman, Emma, anarchist, 70, May 14.
Goma, Isadoro y Tomas, Cardinal and Primate of Spain, 71, Aug. 22.

GOODCHILD, SIR WILLIAM, English economist, 55, Dec. 27.

GOODRICH, J. P., former Governor of Indiana, 76, Aug. 15.

GORDON, C. HENRY, film actor, 56, Dec. 3.

GORDON, J. S., painter, 72, Oct. 12.

GRANT, ROBERT, jurist, 89, May 19.

GRAVES, REV. F. R., P.E. Bishop of Shanghai, 81, May 17.

GREENE, F. R., painter, 84, Jan. 20.

GREENE, HOMER, novelist, 87, Nov. 26.

GREENWAY, DR. WALTER B., educator and clergyman, 64, Dec. 21.

GRENFELL, SIR WILFRED T., founder Labrador Medical Mission, 75, Oct. 9.

GRUPPE, CHARLES P., landscape painter, 80, Sept. 30.

GUILLAUMAT, GEN. M. A. L., French soldier and statesman, 76, May 18.

GUISE, DUC DE, Bourbon pretender, 66, Aug. 26.

GUITART, REV. JUSTINE, Bishop of Urgell, co-Prince of Andorra, 66, Jan. 31.

HADDON, PROF. A. C., British anthropologist, 84, April 20.

HADFIELD, SIR ROBERT A., British alloy steel inventor, 81, Sept. 30.

HAINISCH, MICHAEL, former President of Austria, 81, Feb. 29.

HALE, ROBERT, English actor, 66, April 18.

HALL, JAMES, actor, 39, June 7.

HAMILTON AND BRANDON, DUKE OF, Premier Peer of Scotland, 78, March 16.

HAMMOND, MAJOR GEN. C. C., 66, April 2.

HANSON, OLE, former mayor of Seattle, 66, July 6.

HARCOURT, BERTRAM E., jurist, 59, Dec. 9.

HARKNESS, EDWARD S., financier and philanthropist, 66, Jan. 29.

HARRIMAN, OLIVER, broker, 77, Aug. 14.

HARRINGTON, COL. F. C., W.P.A. Administrator, 53, Sept. 30.

HARRISON, W. P., art collector, 71, June 28.

HARTWELL, DR. JOHN AUGUSTUS, surgeon, 73, Dec. 7.

HEAD, SIR HENRY, neurologist, 79, Oct. 9.

HEIDENSTAM, C. G. W. von, Swedish poet, 81, May 20.

HENKE, ALFRED, German flier, 37, April 22.

HERING, PROF. H. S., Christian Science leader, 75, May 15.

HERTFORD, MARQUESS OF, 68, Feb. 16.

HERTZ, EMANUEL, Lincoln biographer, 69, May 23.

HESSE, ANDRE, French political leader, Dec. 18.

HESSE, FRIEDRICH KARL, Landgrave of, 72, May 29.

HEYWARD, DU BOSE, novelist and poet, 55, June 16.

HICKEY, THOMAS F., R.C. Archbishop of Rochester (N.Y.), 76, Dec. 10.

HILL, WILLIAM J. (Billy), song writer, 42, Dec. 24.

HOBSON, J. A., British economist, 80, April 1.

HOFFMAN, MRS. F. K. (Marion Ball) founder of Pan-Hellenic House (N.Y.), 57, March 21.

HOHENZOLLERN, WILHELM, Prussian prince, 34, May 26.

HOLDEN, HALE, railroad executive, 71, Sept. 23.

HOLLANDER, PROF. J. H., taxation authority, 68, July 9.

HOLM, GUSTAV, Danish Polar explorer, 90, March 12.

HOOPER, F. H., editor, 78, Aug. 14.

HORLICK, WILLIAM, Polar expedition backer, 64, April 1.

HORNE, VISCOUNT, British statesman, 69, Sept. 3.

HORNER, HENRY, Governor of Illinois, 61, Oct. 6.

HORTER, EARL, painter, 55, March 29.

HOUSTON, DAVID F., statesman, 74, Sept. 2.

HOWE, DR. W. A., health authority, 78, Sept. 11.

HUGHES, E. E., steel manufacturer, 77, Jan. 19.

HUIDEKOPER, COL. F. L., military writer, 66, March 7.

HUMPHREY, BURT J., jurist, 74, Dec. 11.

HUTTON, J. M., investment banker, 70, March 1.

ICHIKAWA, SADANJI, Japanese actor, 59, Feb. 23.

INGERSOLL, RAYMOND V., Borough President of Brooklyn, 64, Feb. 24.

Irving, Minna Odell, author, 83, July 23.

Jacoby, Dr. G. W., neurologist, 83, Sept. 11.

Jenkins, MacGregor, author and publisher, 70, March 6.

Johnston, Brig. Gen. J. A., 81, Jan. 5.

Jones, Brig. Gen. J. S., 59, Aug. 17.

Kallio, Kyosti, former President of Finland, 67, Dec. 19.

Keenan, Hilda, actress, 49, Aug. 20.

Keith, Doris Wheeler, painter, 85, Dec. 27.

Kelly, Michael, R.C. Archbishop of Sydney, Australia, 90, March 8.

Kemp, Hal, orchestra leader, 36, Dec. 21.

Kenlon, John, Fire Chief of New York, 80, May 30.

Kent, E. G., ornithologist, 65, March 24.

Kerr, D. J., railroad executive, 56, Oct. 8.

Kieley, J. J., former Postmaster of New York, 74, Aug. 23.

Kimball, W. R., aircraft inventor, 77, July 29.

Kingman, Dr. R. K., neurologist, 64, Aug. 7.

Kirby, Frederick M., chain store founder, 79, Oct. 16.

Klee, Paul, painter, 61, June 30.

Kohler, W. J., former Governor of Wisconsin, 65, April 21.

Koroshetz, Rev. Dr. Anton, Yugoslav statesman and Catholic cleric, 68, Dec. 14.

Kurahei, Yuasa, Japanese official, 65, Dec. 24.

Laderchi, Count P. R., Italian soldier, 78, July 7.

Ladeuze, Rev. Paulin, Rector of Louvain University, 69, Feb. 9.

Lagerlof, Selma, Swedish novelist, 81, March 16.

Laidlaw, Sir P. P., influenza germ discoverer, 58, March 20.

Lamington, Lord, Colonial executive, 80, Sept. 17.

Lansbury, George, British Socialist, 81, May 7.

Laurent, Raymond, former Mayor of Paris, June 16.

Law, Walter, actor, 64, Aug. 8.

Lawford, Ernest E., English character actor, 70, Dec. 27.

Lawson, Roberta Campbell, clubwoman, Dec. 31.

Leathers, Mrs. Blanche Douglass, Mississippi River pilot, 79, Jan. 25.

Le Bris, Pierre, French admiral, 83, Feb. 13.

Lescouve, Theodore, French statesman, 75, April 22.

Lichtenberger, Andre, novelist, 70, March 25.

Lie, Jonas, painter, 59, Jan. 10.

Lindsay, A. M., wood engraver, 81, Feb. 22.

Lippincott, J. B., book publisher, 82, Jan. 19.

Livermore, Jesse L., stock market operator, 63, April 28.

Lockton, Edward, song writer, 64, May 16.

Lodge, Sir Oliver, physicist and spiritualist, 89, Aug. 22.

Loeb, Major Gen. Fritz, German air chief, 45, June 25.

Loree, L. F., railroad executive, 82, Sept. 6.

Lorillard, Pierre, tobacco manufacturer, 80, Aug. 6.

Losey, Capt. R. M., U.S. Military Attaché, April 21.

Lothian, Marquess of, British Ambassador at Washington, 58, Dec. 12.

Lowman, Seymour, statesman, 71, March 13.

Luland, John C., steel treatment expert, 87, Dec. 23.

Lundeen, Ernest, U.S. Senator (Minn.), 62, Aug. 31.

Macbeth, Robert, art dealer, 56, Aug. 1.

MacDonald, Arthur N., designer and engraver of bookplates, 74, Feb. 6.

MacDonald, E. M., Canadian statesman, 74, May 25.

Manning, Ambrose, actor, 79, March 22.

Mansfield, Mrs. Richard (Beatrice Cameron), actress, 72, July 12.

Manvers, Earl of, 51, April 6.

Manzo, Gen. Francisco, Mexican soldier, Feb. 1.

Marchesi, Mme. Blanche, opera and concert singer, 77, Dec. 15.

Margoliouth, Prof. D. S., Arabic author, 81, March 23.

Marguerite d'Orleans, Princess, sister of late Duc de Guise, 71, Jan. 31.

Maria, Princess, of Greece, aunt of King George II, 64, Dec. 13.

Marius, Mme. Emelie, singer, 86, March 26.

Markham, Edwin, poet, 87, March 7.

Marler, Sir Herbert, Canadian diplomat, 63, Jan. 31.

Marsh, Frank Burr, professor of Ancient History, University of Texas, 60, June 1.

Martel, Count Damien de, French diplomat, 61, Jan. 21.

Matthews, Major Gen. H. H., Canadian soldier, 63, May 12.

Mayo, Katherine, author, 73, Oct. 9.

McCandless, L. L., Hawaiian industrialist, 81, Oct. 5.

McCarl, J. R., former U.S. Comptroller General, 60, Aug. 2.

McClellan, George B., former Mayor of New York, 75, Nov. 30.

McCloy, William C., journalist, 81, June 21.

McGarrah, Gates W., banker, 77, Nov. 5.

McGuire, W. A., playwright, 55, Sept. 16.

McLane, Allan, jurist, 75, Sept. 15.

McRae, Major Gen. J. H., 76, May 1.

McVicker, Julius, actor, 84, March 11.

Mendenhall, Rev. H. G., Presbyterian leader, 89, May 15.

Michelin, Edouard, French tire manufacturer, 84, Aug. 25.

Miller, W. C., actor, 48, March 30.

Miller, Webb, journalist, 48, May 7.

Mix, Tom, film actor, 60, Oct. 12.

Modjeska, Ralph, bridge builder, 79, June 27.

Moorland, J. E., Negro educator, 76, April 30.

Mora, F. L., painter, 65, June 5.

Morrow, Alice, educator, 68, May 9.

Morrow, Honoré Willsie, author, 60, April 12.

Morton, J. M., Federal jurist, 70, June 26.

Moton, Robert R., president of Tuskegee Institute, 72, May 31.

Motta, Giuseppe, former President of Switzerland, 68, Jan. 23.

Muck, Kart, Wagnerian conductor, 80, March 4.

Mueller, Admiral George von, German naval officer, 86, April 19.

Mumford, Ethel Watts, author, May 2.

Mundy, Talbot, author, 61, Aug. 5.

Munson, C. W., shipowner, 70, July 7.

Murray, Dr. Augustus T., professor of classics, 73, March 8.

Murray, J. Harold, actor, 49, Dec. 12.

Murray, Brigadier General Peter, army officer, 73, Dec. 26.

Myers, Jerome, painter, etcher, 73, June 19.

Mysore, Maharajah of, 56, Aug. 3.

Nagel, Charles, former Secretary of Commerce, 90, Jan. 5.

Napier, J. E., Negro banker, 94, April 21.

Nevada, Mme. Emma, singer, 81, June 20.

Newbolt, Sir F. G., English attorney and writer on art, 77, Dec. 7.

Newman, A. G., sculptor, 65, Feb. 2.

Newton, A. Edward, book collector, 76, Sept. 29.

Nicoll, Mrs. Courtlandt, prohibitionist, 55, Aug. 9.

Nirdlinger, C. F., playwright, 71, May 13.

Nixon, Lewis, naval architect, etc., 79, Sept. 23.

Noble, G. Kingsley, biologist and herpetologist, 46, Dec. 9.

Noonan, Thomas F., jurist, 63, Dec. 6.

Norton, W. A., actor, 70, March 18.

Novarre, Carrie, actress, 102, Oct. 15.

Novelli, James, sculptor, 55, May 31.

Oberteuffer, George, painter and art teacher, 62, May 13.

Obolensky, Prince Alexander, aviator, 24, March 29.

Olcott, J. V. V., lawyer and legislator, 84, June 1.

Omont, Henri Auguste, French paleographer, 83, Dec. 16.

O'Neil, George, playwright, 42, May 24.

O'Neil, R. T., former head American Legion, 51, May 25.

Osborn, Prof. H. L., educator, 82, Jan. 3.

Pace, Charles A., educator, lawyer, and banker, 71, Dec. 12.

Parker, Ellis H., Sr., detective, 68, Feb. 4.

Pasternack, J. A., orchestra conductor, 59, April 29.

Patrick, A. T., lawyer involved in Rice murder, 74, Feb. 11.

Patrick, Mary M., founder Istanbul Woman's College, 89, Feb. 25.

Pearce, G. C., actor, 75, Aug. 12.

Peixotto, Ernest C., artist, 71, Dec. 6.

Perkins, James H., banker, 64, July 12.

Peynado, J. B., President of Dominican Republic, 62, March 7.

Phayre, Lieut. Gen. Sir Arthur, British soldier, 84, Dec. 14.

Philips, Major Gen. Sir Ivor, British soldier, 78, Aug. 15.

Phillips, Albert, actor, 65, Feb. 24.

Phinney, William, actor, 63, July 24.

Pierce, Brig. Gen. P. E., 74, Jan. 17.

Pierce, W. E., Congressman (N.Y.), 58, Jan. 3.

Piles, S. H., former U.S. Senator (Wash.), 81, March 11.

Pittman, Key, U.S. Senator (Nev.), 68, Nov. 10.

Pomerantz, Arnold, pianist, 19, Aug. 1.

Poore, Major Gen. B. A., 77, Aug. 27.

Poore, Henry Rankin, artist, 81, Aug. 15.

Potter, A. C., librarian, 73, Nov. 1.

Prellwitz, Henry, painter, 74, March 13.

Pusey, Dr. W. A., physician, 74, Aug. 29.

Rajawangsan, Phya, Thailand (Siam) admiral and statesman, 54, Feb. 23.

Ranous, Rodney, actor, 54, April 23.

Rautenburg, Robert, sculptor, 82, Feb. 21.

Redell, Emma, singer, Feb. 2.

Reed, Jessie, actress, 43, Sept. 18.

Reeves, Al, actor, 75, Feb. 26.

Revel, Dr. Bernard, Hebrew educator, 55, Dec. 2.

Reynolds, G. M., banker, 75, Feb. 26.

Rhoades, Cornelia H., blind author, 77, Nov. 28.

Rial, Louise, actress, 90, Aug. 10.

Rice, Brig. Gen. J. H., 70, Jan. 7.

Richard, Louis, sculptor, 71, July 12.

Richardson, Norval, author and diplomat, 63, Oct. 22.

Richmond, Charles, actor, 70, Dec. 1.

Riggs, Dr. A. F., psychiatrist, 63, March 5.

Rigling, Alfred, Philadelphia librarian, 72, Dec. 8.

Rihani, Ameen, Syrian poet, 63, Sept. 14.

Roberts, Florence, actress, 79, June 6.

Robinson, Major Gen. W. G., 60, Jan. 25.

Rodman, Admiral Hugh, 81, June 7.

Rosewater, Victor, journalist, 69, July 12.

Rosny, J. H., novelist, 84, Feb. 14.

Ross, D. W., British actor, 62, June 19.

Rostron, Sir A. H., British sea captain, 77, Nov. 4.

Rothermere, Viscount (Harold Harmsworth), British newspaper owner, 72, Nov. 26.

Ruiz y Rodriguez, M. D., R.C. Archbishop of Havana, 65, Jan. 3.

Rumeau, Rev. Joseph, R.C. Bishop of Angers, France, 91, Feb. 10.

Rutland, Duke of, 53, April 21.

Sabry, Hassan, Premier of Egypt, 61, Nov. 14.

St. John, Marguerite, actress, 79, Oct. 16.

Saionji, Prince Kimmochi, Japanese statesman, 92, Nov. 24.

Savage, M. J., Prime Minister of New Zealand, 68, March 26.

Schratt, Katharina, friend of late Emperor Franz Joseph of Austria, 87, April 17.

Schroder, Baron Bruno, Anglo-German banker, 73, Dec. 10.

Scriven, Brig. Gen. G. B., 86, March 7.

Scudder, Janet, sculptor, 66, June 9.

Seger, G. Y., Congressman (N.J.), 74, Aug. 26.

Sevier, H. H., diplomat, 62, March 10.

Shanks, Major Gen. D. C., 79, April 10.

Shoup, O. H., former Governor of Colorado, 70, Sept. 30.

Silzer, G. S., former Governor of New Jersey, 70, Oct. 16.

Skilton, Mrs. Adah S. G., clubwoman and educator, 92, Dec. 20.

Smith, C. H., Congressman (Me.), 63, April 8.

Smith, Harlan J., archaeologist, 68, Jan. 28.

Sparre, Christian, Norwegian admiral, 81, Dec. 3.

Spottswood, James, actor, 58, Oct. 11.

Squires, Sir R. A., former Prime Minister of Newfoundland, 60, March 26.

Starr, Ellen G., co-founder of Hull House, 80, Feb. 10.

Stephens, Ward, pianist and composer, 61, Sept. 11.

Steuer, Max D., lawyer, 68, Aug. 21.

Stockbridge, Frank Parker, author and journalist, 70, Dec. 7.

Strickland, Lord, Governor of Malta, 79, Aug. 22.

Suydam, Edward H., artist and illustrator, 55, Dec. 23.

Tate, Harry, actor, 67, Feb. 14.

Taussig, Prof. F. W., Harvard political economist, 80, Nov. 11.

Taylor, Rear Admiral, D. W., 76, July 28.

Taylor, Mrs. Rose Todd, cousin of Abraham Lincoln's wife, 100, Oct. 21.

Tetrazzini, Mme. Luisa, singer, 66, April 28.

Thompson, Brig. Gen. J. T., submarine gun inventor, 79, June 21.

Thomson, Sir J. J., physicist, 83, Aug. 30.

Timken, H. H., roller bearings manufacturer, 72, Oct. 14.

Tinney, Frank, actor, 53, Nov. 27.

Tovey, Sir D. F., composer, 64, July 10.

Trainer, Leonard, actor, 61, July 28.

Travis, E. M., former Comptroller of N.Y. State, 78, July 25.

True, Prof. R. H., botanist, 73, April 8.

Tryon, Lord, British statesman, 69, Nov. 24.

Turpin, Ben, film comedian, 71, July 1.

Tweedie, Mrs. Alec, artist and author, April 15.

Tweedsmuir, Lord (John Buchan), Governor General of Canada, 64, Feb. 11.

Ulmania, Prof. Karl, former President of Latvia, 62, July 22.

Untermyer, Samuel, lawyer, 81, March 16.

Unwin, Sir Raymond, town planner, 76, June 29.

Vanderbilt, Mrs. W. K., Sr., 76, April 20.

Vauclain, S. M., locomotive builder, 83, Feb. 4.

Vaughan, Dr. J. C., Arctic explorer, 69, Jan. 12.

Vehib Pasha, Turkish general, 63, June 14.

Verdier, Rev. Jean, R. C. Cardinal, Archbishop of Paris, 76, April 9.

Vesty, Lord, shipping and storage industrialist, 81, Dec. 11.

Vissers, Aloysius, priest to the Oneida Indians, 55, Dec. 20.

Volpe, Arnold, orchestra conductor, 70, Feb. 2.

Wadhams, Dr. Robert P., surgeon, 61, Dec. 16.

Wagner-Jauregg, Dr. Julius, paresis expert (Vienna), 83, Oct. 1.

Wald, Lillian, founder of Henry Street Settlement, 73, Sept. 1.

Wales, G. C., etcher, 71, March 21.

Wall, E. Berry, international social figure, 80, May 5.

Wallack, A. J., founder of the Lambs Club, 91, July 21.

Wambaugh, Prof. Eugene, lawyer and educator, 84, Aug. 6.

Watrous, Harry Willson, painter, 83, May 9.

Wattson, Lewis (Father Paul James Francis), founder of Graymoor Monastery, Garrison, N.Y., 77, Feb. 8.

Waugh, Frederick Judd, marine painter, 79, Sept. 10.

Wetherald, Agnes E. W., Canadian poet, 86, March 10.

Wild, Capt. H. B., pioneer flyer, 61, July 23.

Wilkins, Dr. T. Russell, physicist, 49, Dec. 10.

WILKINSON, SIR NEVILE R., First Herald of Ireland and architect of Titania's Palace, 71, Dec. 22.

WILLCOX, WILLIAM R., former Postmaster of New York, 77, April 10.

WILSON, SIR GUY, official of the British colonial service, 90, Dec. 28.

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WOLFE, HUMBERT, British poet and playwright, 54, Jan. 5.

WOODBURY, CHARLES H., marine painter, 75, Jan. 21.

WRAY, JOHN, actor, 52, April 5.

WRIGHT, J. F., founder of Pathfinders of America, 78, Sept. 8.

YANCEY, CAPT. L. A., aviator, 44, March 2.

YEATS, ELIZABETH C., Irish author and artist, Jan. 16.

YOUNES, SALEH, Egyptian statesman, Nov. 27.

YOUNG, C. J., etcher, 59, March 4.

ZIMMERMANN, A. F. M., German statesman, 81, June 6.

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